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THE
DENTAL DIGEST

Vol. XXXIII JULY, 1927 No. 7

The Lost Vertical Dimension

A Method of Locating the Condyle Heads and Determining the Correct Bite Length in Edentulous Mouths

By Addison Karrick Parks, D.D.S., Montgomery, Ala.

A review of the progressive steps in denture construction for the past fifteen years discloses that the attention of investigators and research men has become more and more concentrated on mandibular movements. Five years ago dental literature, lectures and clinics were prolific in impression methods. Today an article on that subject is rare. It seems that, for the time being at least, the dental profession is satisfied with present-day impressions and is persistently striving to reproduce mechanically movements of individual mandibles and to construct dentures which will coordinate with those movements.

No less than twenty instruments designed for this purpose have been brought forward within the last twelve months. The painstaking ingenuity disclosed in the construction of these instruments and in the intricacies of their adjustments is amazing. An examination of this array of articulators and the instructions for their use would lead us, on first thought, to believe that the ultimate has been reached in this most important part of our technic.

The objective, if I know it, is to be able to construct a set of dentures so that when the teeth are brought into contact in any of the ordinary positions of mastication or incising, there will be equal pressure at all contact points, and so that such pressure will tend to seat rather than dislodge both upper and lower dentures. The dentures must also be so constructed that the user can move from any one of these positions to any other and maintain this pressure during that movement. Furthermore, this movement must be possible without undue friction between denture and living tissue. Such, I take it, is perfect occlusion and articulation.

Intensive study of this subject, together with thirty years' application of the results, has convinced me that mandibular movements are as individual as eyes, and that properly functioning teeth are no more interchangeable than spectacles. It is as reasonable to expect a near-sighted person to see through plus spherical lenses as to expect him to masticate, comfortably and efficiently, on teeth set and ground to a masticatory movement other than his own.

To attain this goal, it is necessary to reproduce mechanically or at least closely approximate the individual, habitual masticatory movements of each case. This does not mean that any dentist may purchase an articulating instrument today and be a denture specialist tomorrow. Articulators are more often abused than used. There is a great difference between going into a specialty and growing into it. Too many dentists go in unprepared and go out disgusted.

A set of dentures constructed on the old-fashioned hinged instrument is just as apt to be as serviceable (or maybe more so) as is one built on a modern instrument by one who has not the necessary knowledge to adjust it or the skill to align the teeth so as to coordinate them with the movements controlled by those adjustments.

An adjustable articulator is useless unless the casts of the mouth are attached to it in such manner that the ridges bear the same relation to its mechanical substitutes that the natural ridges in the mouth bear to the anatomical joints of jaw and skull. This, to the beginner at least, entails the use of a face bow and also necessitates locating the condyle head accurately. Furthermore, the ridges of the upper and lower models on the instrument must be in the same relation to each other as the natural ridges normally are to each other in the mouth, both *vertically* and horizontally.

The bite must be correct and normal centric occlusion established. Any deviation at this stage of procedure means lessened efficiency in the finished dentures and may mean that subsequent adjustments of the instrument are futile. Why? Because, if condyles are moved forward in the fossae by a bite too far forward or too open, the mandible becomes technically a free agent, and it is impossible to secure accurate registrations of lateral movement started from this position.

Our bodies are so constructed that any of their various units function best in certain and definite positions, which are *involuntarily* assumed. A man expecting a heavy burden to be placed on his shoulders naturally assumes a slightly crouched rather than erect posture and, while carrying that burden, unconsciously takes shorter steps. The masticating unit is no exception. In one certain position—normal central occlusion of the teeth—the masticating unit reaches its highest efficiency, and, when called upon to perform, the mandible naturally seeks that position. If we deviate in any direction—forward, to the side, open or close—in constructing the dentures, function is impaired in rapidly increasing ratio.

In what relation, one to the other, then, are the upper and lower ridges when various components of the masticating unit are in position to perform best, and how may this relation be recognized in an edentulous mouth? The purpose of this article is to attempt an answer to that question.

Normally, in a case with good natural dentures, the condyle heads rest snugly and comfortably in the posterior part of the glenoid fossae when the teeth are in centric occlusion, as shown at *E,* Fig. 1. The teeth and condyles can be forcibly retruded from this position, but doing so compresses the tissue posterior to the condyles, causing distress, and this false relation cannot be maintained.

To move in any other direction, one or both of the condyles must move forward and the opening movement is involved. Therefore the

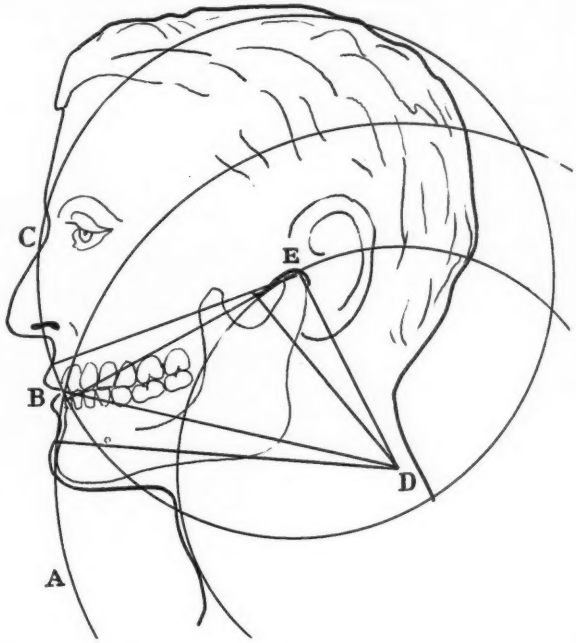


Fig. 1

Teeth in normal centric occlusion at elevation *B,* where circles drawn from *D* and *E,* as centers intersect. The condyles are in the most retruded position from which lateral movement can be made.

temporomandibular joint, normally, is not a hinge but a sliding joint, and the condyle heads are in the circumference and not in the axis of the opening movement (*E,* Fig. 2). Years ago Dr. Gysi introduced his incisor path marker and the Gysi Gothic-arch tracing for determining the correct horizontal position of the mandible. The writer has found it to be an infallible method at any given practical elevation. However, as the protrusive relation changes at different elevations, it is extremely necessary to find and fix the correct vertical distance *first.*

With good natural dentures the teeth act as a stop in the closing movement (*B*, Fig. 1). If this position has been recorded while normal, all is well. If the case is edentulous when it presents, this stopping place in the closing movement is problematical. In the former case the opening and closing movement is centered below and posterior to the condyle heads (*D*, Fig. 2). In the edentulous case the center of the movement is the same until the condyle heads meet resistance in their backward trend (*E*, Fig. 1), at which elevation the axis is changed to

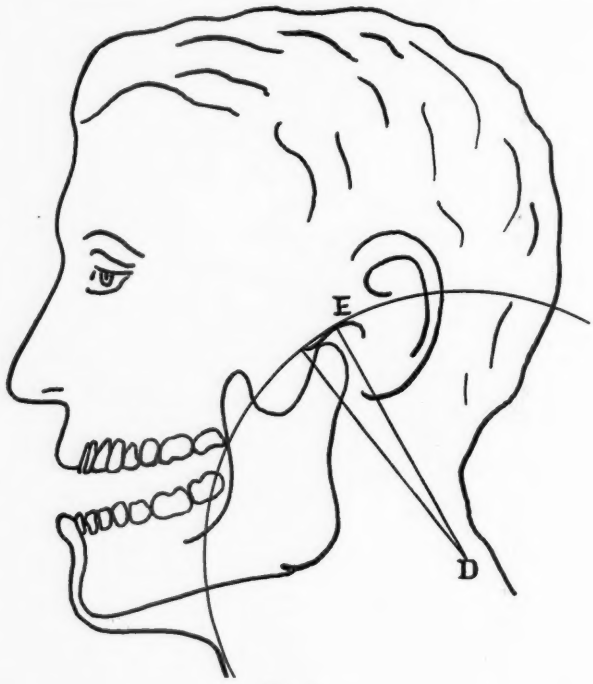


Fig. 2

Opening movement—condyles moving forward and teeth downward from center *D*.

the condyle heads (*E*, Fig. 3). If we can know, then, when this change of rotation control takes place, we shall know the correct stopping point or correct bite length of that patient.

Theoretical Proof

Fashion from stiff round wire an appliance similar to an old-fashioned interdental splint and solder a pencil-holder to the anterior extension (Fig. 4). With hard wax attach this to a stiff, accurately fitted lower baseplate (Fig. 5).

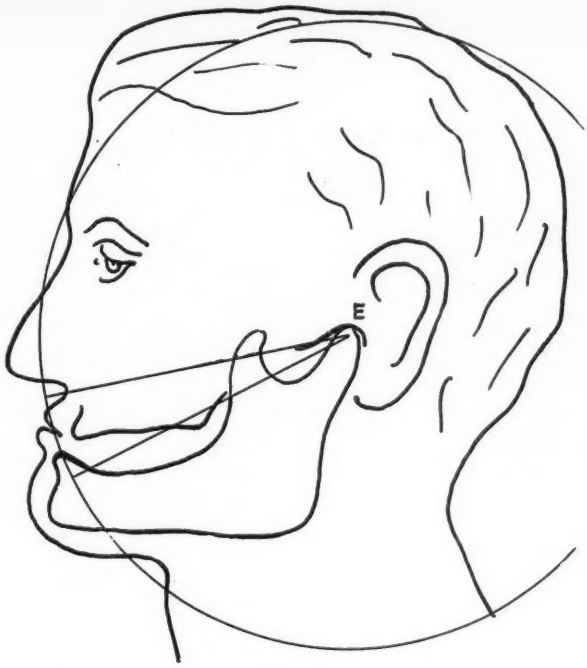


Fig. 3

Mouth closed beyond its natural stop. The condyle could not move farther back, so the center was changed from *D* to *E*, introducing an unnatural forward and upward thrust.

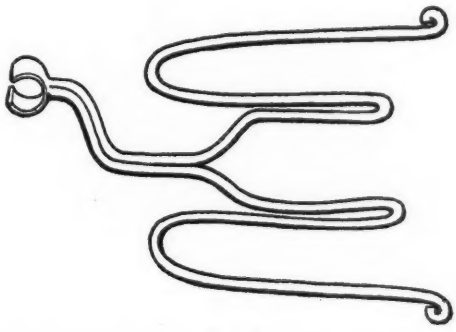


Fig. 4

Appliance made from one piece of 10-gauge spring wire with pencil-holder soldered on.

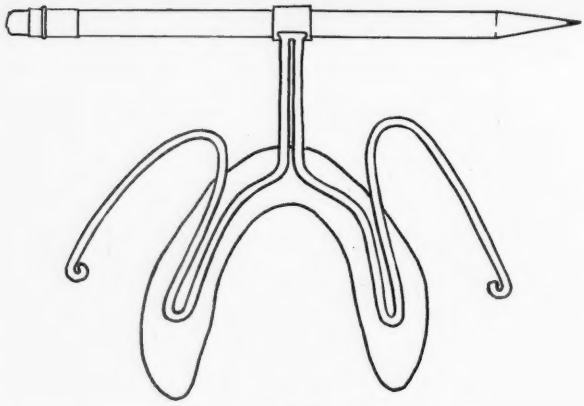


Fig. 5

Appliance (Fig. 4) attached to lower baseplate, and pencil in place. When in the mouth, a rubber band is passed under the jaw to hold it securely in place.

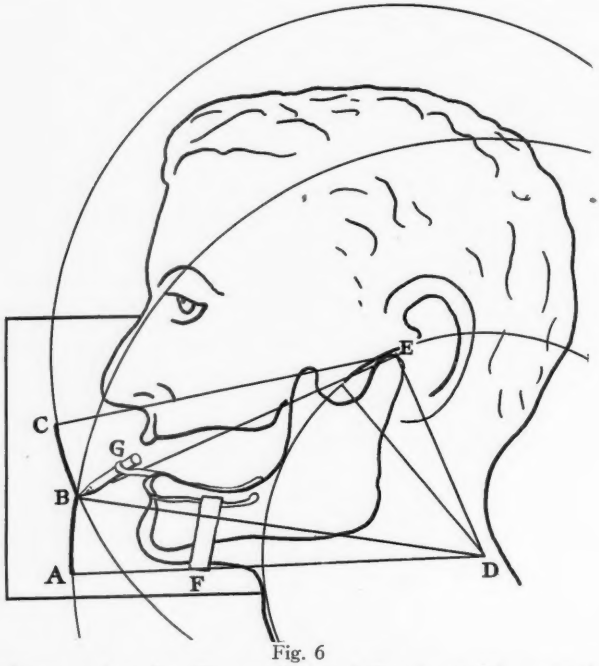


Fig. 6

Apparatus in action. The mandible, including the condyle, moves from center *D* and makes the arc *AB*, until the condyle meets resistance behind at *E*. The center is then changed from *D* to *E* and the movement forms arc *BC*.

Place in the mouth and secure to position with a rubber band passed under the jaw (Figs. 6-7). Place the record card to the side of the face, at right angles to the pencil and in contact with the point (Fig. 7). Trace an outline of the upper border of the card on the face, to facilitate replacement. Have the patient retrude and move from extreme open to extreme closed position, and vice versa.

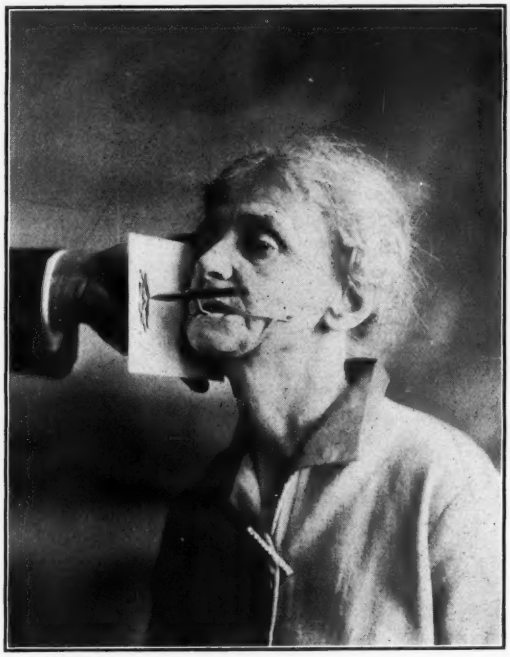


Fig. 7

Photographic representation of the appliance tracing the arcs shown as *AB* and *BC* in Fig. 6.

The pencil will record arcs from two centers, as *AB* and *BC* in Fig. 6. Arc *BC* cannot be made with natural dentures because the teeth act as a stop at point *B*, and it is, therefore, an unnatural movement.

Have the patient move the pencil point to *B*. Measure the distance between the ridges, and you have the correct bite length of this patient.

Test

Build short upper bite rim. Build lower bite rim at least one-half inch too high, or high enough to stop closure well below point *B* in Fig.

Fig. 8

Two Gysi Gothic arches made at different elevations. Note that the one made on the open bite is from wider lateral centers, due to the lateral inward inclination of the fossae walls, allowing a less constricted movement.

6; with incisor path marker and plate, make Gysi Gothic arch at this elevation.

Remove the record plate. Shorten the lower rim until the patient can close well above point *B*. Replace the record plate in the same relation to the lower ridge and get another Gysi tracing.

It will be found that a good patient can make two perfect tracings, one posterior to the other (Fig. 8).

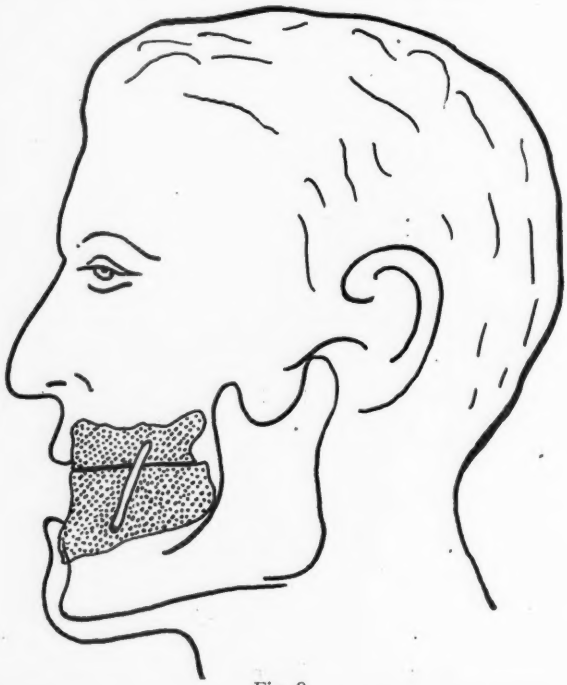


Fig. 9

Practical application of the theory. Lower bite rim is made much too high. Retrusive bite is made in the mouth and a mark drawn on the sides, as near as possible, in arc from lower center.

Application in Practice

Build the upper bite rim to the length most suitable to the esthetics of the case.

Build the lower bite rim at least one-half inch too high and take a retrusive bite at this elevation. Mark the upper and lower rims on the side in bicuspid region (Fig. 9). Gradually reduce the lower rim and make successive retrusive bites until the mark on the lower is anterior to the mark on the upper (Fig. 10).

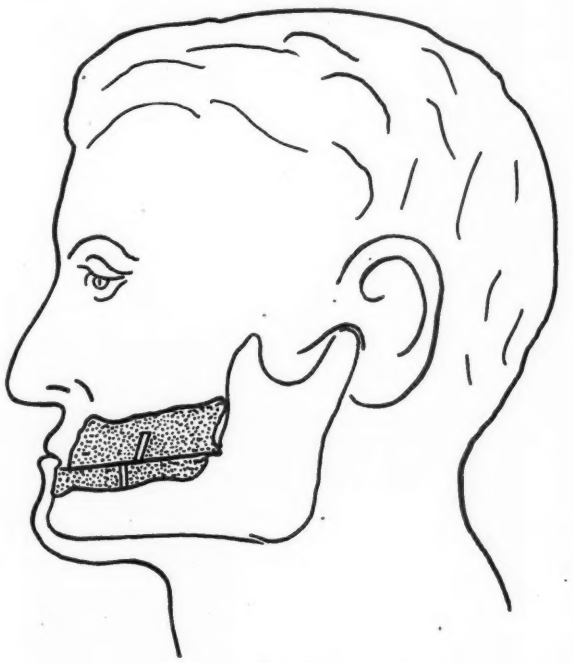


Fig. 10

The lower bite rim has been shortened until an upward movement results, which is not possible with good natural dentures and not desirable with artificial dentures. The marks on the sides of the bite rims are no longer continuous.

Rebuild the lower to the point where the forward movement started, which will be at *B,* Fig. 1, at which point the marks on the bite rims will again first become continuous (Fig. 11). This is the correct elevation or bite length.

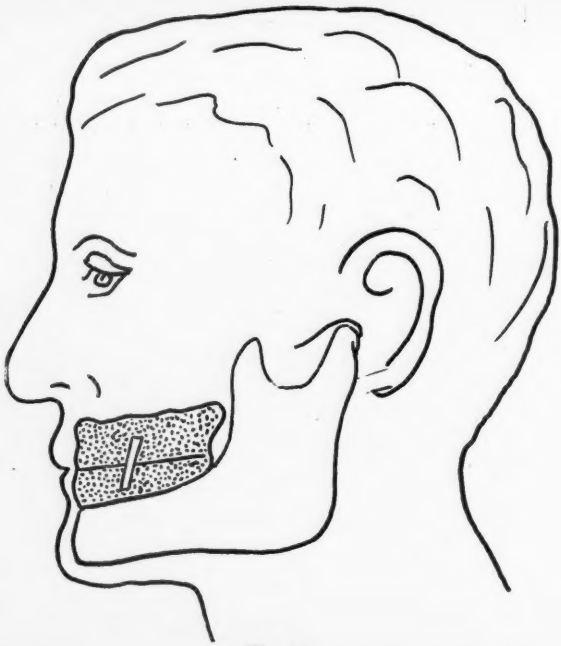


Fig. 11

The height of the lower bite rim has been increased by successive stages until the marks on the sides are again continuous. When this relation first obtains, the bite will be of the correct height.

Fig. 12

Perpendiculars have been erected at the ends of the arc *BC*, Fig. 6. The point where they meet is a guide to the location of the condyle head. The card should be punctured with a pencil at that point.

Locating Condyles

Draw too radii of arc *BC* (Fig. 6) on the record card. Puncture the card where they intersect at *E* (Fig. 6). Replace the card to marking on the face and make a dot through the puncture (Fig. 12). This dot will be directly over the upper posterior border of the condyle head (Figs. 13-14).

Fig. 13

Card is replaced to marks previously made on the face, and a dot is made on the face.

Deductions

1. Dentures constructed on a too open bite bring the condyles forward in the fossae, locating them on inclined, slippery surfaces. Pressure of mastication tends to force the mandible backward, causing irritation at the anterior sublingual border especially.

2. On a too short bite a new movement is introduced, which is foreign to normal mastication. This movement is a "forward thrust"

Fig. 14

The dot is the center of the upper movement and is over the upper posterior part of the condyle head.

and tends to dislodge the upper denture and cause irritation at the labial border and heels of the lower.

3. Registrations for adjusting the articulator made at one bite elevation are unreliable at any other elevation.

4. It is necessary not only to find the lost vertical dimension but to find it *first.*

406 Bell Building.

Substituting Cement for Dentin, Strengthening Cavity Walls and Making Ideal Form*

By R. H. Reese, D.D.S., Brooklyn, N. Y.

If cement is judiciously used in the preparation of cavities for metal fillings, it will not be necessary to remove strong overhanging walls to anything like the extent that is necessary when only metal is to be inserted. In the preparation of cavities for inlays the undercuts may be filled with cement, and this will strengthen the remaining walls. For gold foil or amalgam fillings the retaining form may be made in the cement rather than in the tooth substance. By means of the technic which is to be described, the cement may be made to adhere to the tooth with astonishing strength. It is not an uncommon experience to remove a gold shell crown and find the cement so firmly adherent to the enamel that it is removed with difficulty. Used in the manner to be described, it can be made to adhere to the dentin of

A B

Fig. 1

the teeth so firmly that it would be difficult to break away, and, if discretion is used, fillings which have their anchorage in such cement will be found to be very firmly placed.

Technic

Remove all the decay and all the frail overhanging walls, but do not cut away strong overhanging walls merely because they are not supported by dentin. Sterilize the cavity.

Shape the enamel margins to about the desired form.

Keep on hand a supply of matrix metal, which is sheet steel, 1/1000 of an inch in thickness. Cut this into strips of the proper length and width to make matrices for bicuspids and molars (Fig. 1-A). Each matrix should have a projecting flap on each end, which may be grasped by the matrix clamp (Fig. 1-B).

Adjust the matrix about the tooth to be filled and tighten it into position with the clamp. Lubricate the inside of the matrix and all

* Report of a clinic before the First District Dental Society, New York, December 8, 1926.

of the tooth surface that can be reached, including the cavity surface, with vaseline or cocoanut oil.

Apply a little vaseline to the apex of a cone of modeling compound and heat the cone over a small flame just as it is heated for taking a cavity impression for an inlay. With firm pressure take an impression

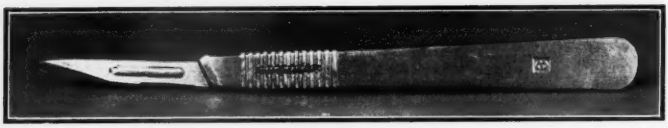


Fig. 2

of the cavity and the adjacent tooth surface. When the compound has cooled until it is about like the rubber on the end of a lead pencil, withdraw the impression from the cavity about 1/16 of an inch and then reseat it. Continue to withdraw and reseat the impression, drawing it out a little farther each time until it can be easily withdrawn. Chill it in cold water. When the impression is seen to be satisfactory, the matrix may be removed from the tooth.

With a sharp knife which has a narrow pointed blade (Fig. 2), cut away from the cavity surface of the impression all the compound which is to be replaced with cement. It is highly desirable to practice upon extracted teeth the taking of impressions and their carving in order to perfect the technic, because in carving the impression one is making a counter die, the reverse of what is usually done upon the teeth (Fig. 3).

Thoroughly clean and dry the tooth with chloroform. In all deep cavities it is desirable to use a cavity lining.

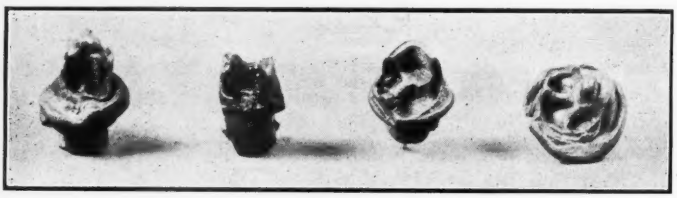


Fig. 3

Cut away the excess of compound around the margin of the cavity as it shows in the impression. The impression is now to become a plunger and for this purpose the remaining portion of the cone will form the handle.

Lubricate the cavity surface of the impression with vaseline.

Now begin the mixing of the cement, using a dark cement so that the surplus can be readily seen and removed. Otherwise some of the cement may be left on the margins. See that the cement slab is perfectly clean. Place the desired quantities of powder and liquid on the slab a little distance apart. Separate from the pile of powder a quantity about as big as would go on the head of an ordinary brass pin and thoroughly incorporate it into all of the liquid. Leave it thus while drying the cavity with chloroform and inserting the cotton rolls, etc.

Mix the balance of the cement by incorporating each time into all of the liquid small portions of the powder and rubbing thoroughly. The cement will be of proper consistency for placing in the cavity

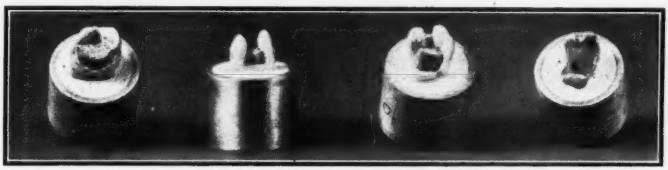


Fig. 4

when it offers a little resistance to the rubbing motion of the spatula, or when, if the spatula is laid flat in the cement and then lifted from the slab, the cement is a little stringy.

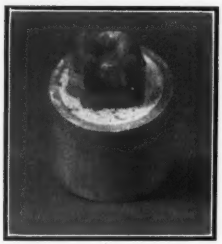


Fig. 5

With an old explorer point tease the cement into the cavity, taking care to eliminate air in the undercuts. Place a little cement on the cavity surface of the impression, which is now to be used as a plunger. Insert the plunger into the cavity and press to place, then hold in this position with pressure for five minutes.

When the cement has set, as judged by the cement on the slab or spatula, remove the plunger and trim away the surplus cement from the tooth. By the use of an end-cutting bur, with the cement pulpal wall as a guide, a flat gingival seat may be established. A gingival margin-trimmer should then be used to bevel this margin. With a stone grind a fissure bur so that it will not cut on the end. Hold the smooth end of this bur against the occlusal cement pulpal wall and make the occlusal margins of the cavity parallel. These margins should be beveled and polished with fine stones (Figs. 4-5).

143 Clinton Street.

PERCY HOWE'S LETTERS
In Collaboration with "Brother Bill"

Seventh Letter

Dr. Howe writes as to the results of diet-deficiencies on the condition of the teeth and the tissues that support the teeth.

My dear Doctor:

In the last letter I described some of the results of a deficiency of Vitamin C upon the pulps of the continuously growing teeth of

Fig. 17

Teeth of a guinea-pig on normal diet. Observe that they are short, broad and straight.

guinea-pigs, showing that the destruction of the pulp began before there were any outward physical symptoms, and that the dentin of the root began to be dissolved from within by a process which is not caries, as we generally use the term. In this letter I shall try to tell

you a little about some other effects of Vitamin-C-deficient diet upon the teeth of experimental animals.

As you know, all the teeth in a guinea-pig grow continuously. The posterior teeth have no enamel, and this makes it easier to see whether a diet has any effect upon the dentin. When a guinea-pig is fed upon a balanced or normal diet, the teeth are like those shown in Fig. 17. Perhaps you cannot see very much in the picture, but it will suffice for the moment to say that the posterior teeth are relatively short and broad and firmly rooted in the jaw. The incisors are of moderate length, have enamel on the labial surfaces and are worn by mastication to a chisel-like bevel, with a hard cutting edge at the labial surface.

Fig. 18

Teeth of a guinea-pig on a diet good in all other respects but deficient in Vitamin C. The dentin is very soft, the teeth flatten and sometimes bend. The enamel on the incisors is of very poor quality. Sometimes no enamel is formed.

If a guinea-pig which has developed such teeth on a normal diet is placed upon a diet that is deficient in Vitamin C but good in all other respects, the character of the teeth may be greatly changed. When the portion which is produced on the deficient diet comes above the gum, the dentin may be found so soft that even a delicate instrument can be run clear through the tooth. When this soft portion comes into the function of mastication, the teeth may be spread out on the occlusal surfaces somewhat like a nail-head, or the dentin may

be rapidly worn away, perhaps unevenly, and the appearance of the teeth may be completely changed, so that instead of being short and broad they may become long and narrow. In cases where the deficient diet is sufficiently long continued, the teeth may bend together across the mouth in such way as to make it difficult for the animal to eat, and it would starve if food were not cut into small pieces and placed in the mouth. Molars bent in this way are shown in Fig. 18.

On the incisors the effects are somewhat similar. The dentin changes from its normal hard condition to the soft condition and is easily worn away, and the teeth may be much cupped on the lingual sides. The enamel may be poor in quality or entirely lacking. It is quite possible, by proper manipulation of the diet-deficiency, to produce incisors with bands of enamel separated by spaces with no enamel.

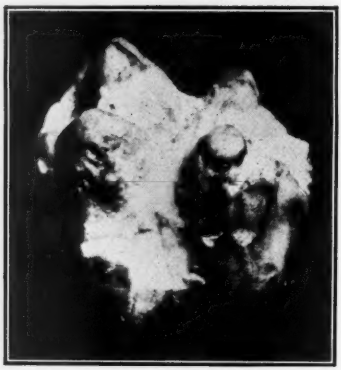


Fig. 19

Unerupted molar of a monkey. Normal enamel was formed on tips of cusps while the animal was on a normal diet. The rest of the enamel, which was formed on a diet deficient in Vitamin C, is very soft and chalky. In the effort to remove the tooth from the jaw, after death, it was cut without my knowing that I had touched tooth tissue.

This is a sort of dental barbers' pole. The incisors become carious and sometimes break off in mastication.

Before we examine the effects of Vitamin-C deficiencies upon the teeth of monkeys, let me remind you that all of our efforts to affect these teeth by fermentation in the mouth for long periods of time by the feeding and injection of microorganisms associated with caries have been unavailing, so long as the diet was normal. Let us examine first the effect of diet-deficiencies upon the enamel of a monkey's tooth.

Fig. 19 shows a monkey's molar which had not erupted when the animal passed to the "happy hunting grounds." Like all our other

monkeys, this animal was born in a wild state in India and began life upon a normal diet. Not very long after it reached this country, this diet was made somewhat deficient in Vitamin C and continued so for 18 months. After his demise it was desired to inspect the effect of diet upon this unerupted molar, and this tooth was very carefully removed from the tissues.

Where calcification began at the tips of the four cusps, there are four caps of normal enamel. This is the extent to which the calcifica-

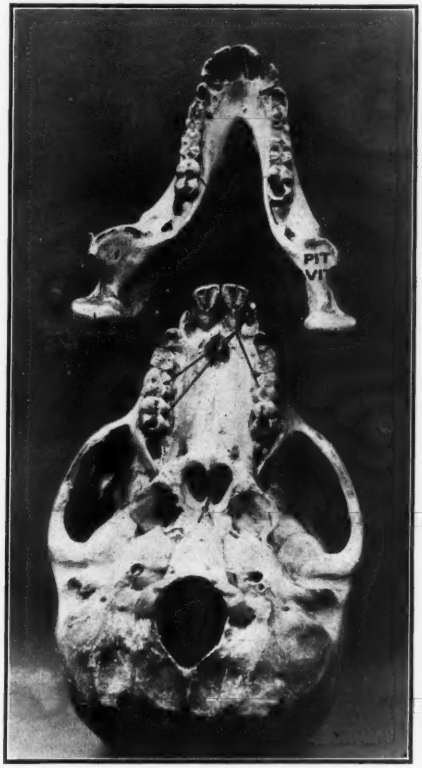


Fig. 20

Dental arches of a monkey which had for 15 months a diet containing an excess of cereals with a deficiency of green food. Extensive decay of upper and lower molars resulted. Several pit and fissure cavities do not show. We have repeatedly caused such decay by the use of an unbalanced diet.

tion of this tooth had proceeded when the diet was changed. Shortly after that the enamel became so soft and chalky that during the removal the instrument used in taking it out made a scar in the side,

without my feeling that I had even touched tooth tissue, and it was not known that the tooth had been cut until it was out. It is apparent, then, that diet may affect the quality of forming enamel in a monkey.

If monkeys are fed upon a deficient diet, the caries which cannot be produced upon a normal diet will occur and may be extensive. We have learned that depriving the animal of some of the vitamins or other necessary food factors frequently permits caries to occur. Fig. 20 shows two occlusal views of the dentition of a monkey which was fed for 15 months on a diet containing an excess of proteins and cereals and a deficiency of vegetables and green food. There are large cavities in a molar of each jaw, and several pit cavities which are large enough to receive an ordinary brass pin do not show in the picture. Here, then, is a case where the change of diet of an experimental animal produced dental caries in an animal which seems to be immune to it on a normal diet. Other experimental laboratories report similar cases.

Some months ago I wrote you that one of the results of this work upon experimental animals is that it enables us to look at conditions in people with better understanding. Let us therefore summarize what we seem to have learned in regard to the effect of deficient diets upon teeth and then seek to apply the results to people.

The net result of our experiments so far seems to be this—so long as the environment of the animal is satisfactory in regard to air, sunlight, food, water, shelter and exercise, the feeding of the acid-producing organisms supposed to be most active in causing caries and the continuation of fermentation in the mouth by the addition of sugar to a normal diet, even up to a point where the saliva becomes distinctly acid, are without any effect upon the general bodily health or the teeth. Please observe that I said "general bodily health" first, because that may prove to be more fundamental than the condition of the teeth. When you subtract from that satisfactory environment one or more of the essential food materials, something happens to the general bodily health, and the mouth which was immune to disease on the normal diet may become diseased and the teeth which were immune to decay may decay. Do not understand me to say that the diet-deficiency causes the decay. I do not know whether or not it causes it. I only know that, following a deficiency, decay occurs with too much regularity for it to be a mere coincidence.

I have just called your attention to the fact that the general bodily condition may be more fundamental than the condition of the teeth in cases where caries of the teeth has been produced as a result of diet-deficiency. In the experimental animals the process which destroys the teeth is by no means confined to the teeth. In the early stages, before caries of the teeth occurs, there may be eye trouble or

Fig. 21*

Carious jaw and carious teeth. Whatever may be said about the relation between a lowered physiological threshold, probably most pathologists would say that there is an intimate relation between such a lowering of the threshold and caries of bone.

symptoms of rheumatism, loss of the power to control the legs, and other conditions, such as increased susceptibility to infections, which are well known to every worker in experimental laboratories. If deficiency is carried to a point where dental caries occurs, it may be found that caries of other bones of the body has occurred concurrently. Fig. 21 shows the jaw of a guinea-pig in which caries of both the teeth and the jaw bone is present.

Fig. 22 shows two skulls in which the carious process is extensive. Evidently the physiological threshold throughout the body has been lowered in a very important and dangerous way.

Fig. 22*

Carious skulls from animals on deficient diet. It is very suggestive that on normal diet such conditions are unknown, but that they are very common on deficient diets.

*Courtesy of *The Dental Cosmos.*

Perhaps these facts will make it plain that, in experimental animals at least, the teeth do not stand apart from the other organs, but that they are integral portions of the body. Once you see this, it will occur to you that there may be a similar relationship in the human body, and you may thereafter look at a carious human tooth in a new way and perhaps begin to think that the effects you see in it may be the result of far-reaching causes, which should come within the scope of your professional thinking, even if the results are not identical with those in the experimental animals.

In a moment we are going to look at some children in the light of what we have learned, but before we do that, I want to utter a word of caution against overemphasis of the importance of diet. It is important enough, goodness knows, and I should be one of the last to minimize it, but I want to be one of the first also to caution against overemphasis, because nothing is gained thereby and much may be lost. Diet is by no means the only essential element in the environment. Heredity, shelter or exposure, cleanliness, fatigue and even happiness are important. Every once in a while we come across a child living under conditions which in other children all around him lower the physiological threshold with consequently increased susceptibility, but who, in spite of this, is vigorous and resistant. The life of a human being is much more complex than that of an experimental animal, and he has many more contacts in his environment and many more resources. It may be that some uncharted combination of favorable factors in an occasional child rises superior to some of the deficiencies under which he happens to live, or the momentum of his inherited vitality may carry him safely over, or he may have resources of which we know nothing. Stolen fruit is not only sweet; it may be vitamin-rich. Even if such cases are rare, it is well that they happen, because they teach us that the human body is so complicated that we are not justified in looking to one source for all the troubles and all the cures.

The clinic of The Forsyth Dental Infirmary will furnish all the material we need for observation. Leaving out of consideration the rare cases in which children are healthy under apparently unfavorable conditions, what do we find? Dr. Cross, Director of the Infirmary, says that practically every one of the more than 34,000 children who are patients of the Infirmary suffers from either caries or malocclusion and sometimes from both. Many of them are undersized. Growth may be retarded or progressing in an irregular way with great length of limbs but with no breadth of body. Some of them are much too fat, with flabby flesh. Many are pale and anemic, and disturbances are evident. Eye troubles, skin troubles, enlarged nostrils and adenoids are prevalent. Rickets and other bone defects are readily visible. There is every evidence that nutrition has been defective during all

or at least a large part of the formative period of most of these children. There is no explanation for this on racial grounds, because tabulation of Russians, Italians, French, Americans, Jewish, Scotch, Swedish, Germans, Irish and English does not afford any information which would be of value. Whatever may have been the conditions of these races in their native lands, under the very similar conditions which surround them here the physical condition is very much alike in all.

Dental decay is rampant. In 1915, when this Infirmary began service, 83% of all six-year molars which presented were so badly decayed that they had to be treated or extracted. For the children who came under the care of this clinic before their six-year molars erupted it is not now necessary to extract any of these teeth, but for the children who came under its care for the first time in 1925 it was necessary to extract 2338 six-year molars. In that year nearly 15,000 fissures and cavities received silver-reduction treatment, nearly 73,000 fillings were placed, and 22,768 prophylactic treatments were given.

Now, do not understand me to say that because more than 154,000 children who have been treated in this Infirmary are suffering from dental caries, they are suffering also from caries of the other bones of the body. But is it not suggestive that, in more than 75% of all cases where there is extensive caries, there are also other serious troubles?

We produce similar defects in experimental animals by deficiency in the diet. What about the diet of these children? Of course, it varies with different individuals, but in general it shows a striking similarity to the deficient diet we establish for animals. The children get disproportionately large quantities of cereals, white bread, meat, coffee and sweets, with a deficiency of vitamins and mineral salts.

Never before in the history of the world has the consumption of cereals and refined flours been so great as it has been in America and parts of Europe since the perfection of the rolling-mill process in 1879.* Almost coterminous with this disproportionately large consumption do we find certain skeletal defects and susceptibilities. The consumption of sugar is very great, probably not less than 100 pounds per person annually, and this, with the consumption of other refined foods, constitutes a grave menace to health. It is not to be urged that refined flours and sugar be excluded from the diet, but their consumption should be brought within safe limits and they should be balanced by the habitual daily intake of uncooked vegetables, fresh fruits and milk.

The systemic defects in animals unfailingly follow the deficient

* It is worth while to read *Food, Nutrition and Health*, written by McCollum and Simmonds and published by them at Johns Hopkins University, Baltimore, Md.

diet. The longer the diet-deficiency is maintained, the more serious are the consequences.

May we not do something toward preventing the occurrence of such conditions in children of families under our care, if we teach expectant mothers, as well as the mothers of young children, what elements in the diet are essential to the maintenance of a high physiological threshold?

Yours very truly,

Percy R. Howe

A Dental Research Fund

A fund of $50,000 for dental research at Temple University, at Philadelphia, has become available through the will of Dr. Henry Isaiah Dorr, emeritus professor of anesthesia in the school of dentistry there, according to *Science*. The income of the fund will be used to establish, equip and maintain a laboratory of dental pathology and bacteriology, with special reference to the relationships existing between these subjects and anesthesia.

Camru Incisal Guidance Technic

By George S. Cameron, D.D.S., Montreal, Canada

The Camru incisal guidance technic is used for the purpose of having a patient bite in a given definite manner. Occasionally we get patients with whom we have a great deal of difficulty in obtaining the correct relationship of the upper and lower jaws. Those who have made a special study of this subject state that if there is a variation of a millimeter in central occlusion, we cannot obtain the desired results.

Let us take the conditions for a full upper and lower try-in. If we get a variation from the desired relationship when the teeth are placed in the mouth, that is the stage where this technic is used, as follows:

When the patient has the teeth closed so that the jaws are in the desired position, take a piece of stick compound and heat and flange the end so that it is fan-shaped, the width being about twenty-five millimeters or sufficient to take in the centrals and part of the laterals, uppers and lowers. Usually the depth does not need to exceed ten millimeters. Heat the broad surface of the compound fan to the flowing stage for a slight depth. This is placed gently against the surfaces of the upper and lower incisors when they are in the desired closed position, and the compound is chilled.

The upper case is removed, and small portions of warm carding wax are placed in the region of the occlusal surfaces of the bicuspids and molars and tacked with a hot spatula. The upper is now replaced in the mouth and, with the compound guide held in position on the uppers, the patient is requested to close. When the lower teeth come into contact with the compound, they follow the grooves in it and go to the desired position. With the teeth still closed, remove the compound flange and press a small piece of carding wax in the same location, tacking it to the upper with a hot spatula. Remove the cases from the mouth and the lower model from the articulator, and remount according to the new registration.

In certain cases the compound cannot be removed without opening the jaws, but this can be remedied easily by cutting away the lock on the compound. This technic may be used for all cases in which we wish to guide the closing movements of the mandible.

I wish to give credit to my mechanic, Russel Copeman, for his assistance—hence the name of Camru Incisal Guidance Technic.

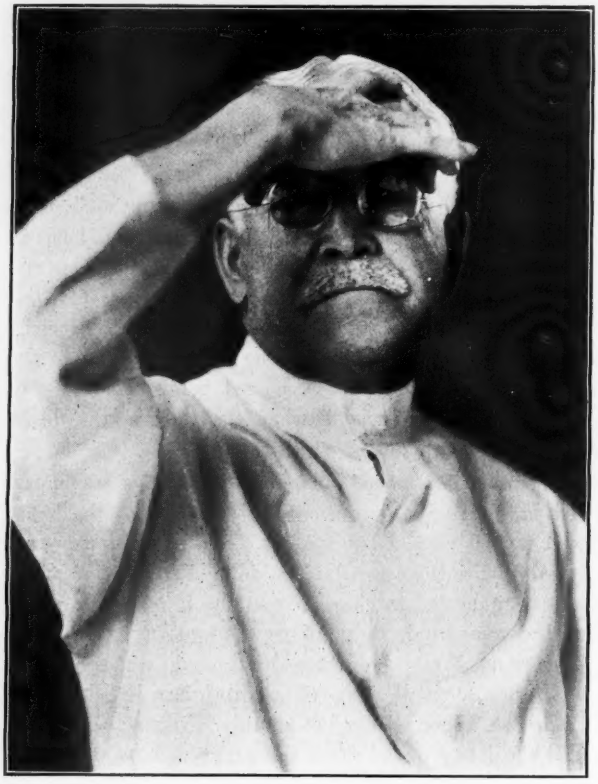
400 Birks Building.

Getting Central Occlusion

By F. A. Greene, D.D.S., Geneva, N. Y.

Try this experiment upon yourself and watch results.

Place thumb and index finger on temporal muscles with firm pressure, as in the illustration. If you close in central occlusion, it will register in both temporal muscles. If you put the mandible forward,



you will get no response; if you put it to the left, response will be in the left muscle; to the right, in the right, etc. Try it on a patient!

You can close your eyes and tell your patients just where they are putting the mandible, and response in both muscles will come only in central occlusion.

Instruct the patient to open and close the jaws slowly and with firm pressure.

39 Seneca Street.

Oral Surgery in Practice

By James L. Zemsky, D.D.S., New York, N. Y.

Attending Surgeon, Department of Oral Surgery; Chief of Clinic and Director, Surgical Periodontia Department, Midtown Hospital, New York

(*Continued from May*)

EXTRACTION

¶127. Pulling or yanking teeth is bad technic. Extractions should be performed with just as much care and precision as any other surgical operation. When forceps are used, the gingiva at the neck of the tooth should be separated from the underlying tissues to prevent *tearing* this tissue.

¶128. Regardless of how small a broken-off root fragment may be, it should be removed. There are times when one is tempted to leave it alone. This, however, is neither good judgment nor good surgery.

¶129. When the coronal portion of the tooth breaks away during extraction, leaving a vital pulp exposed, the pain caused by the pressure exerted upon it with either gauze or instruments is excruciating. Great care should therefore be taken in such cases to clear away all spicula of bone, carefully wash out the blood clot and apply a little cocain or procain powder to the exposed pulp. Soon the sensitiveness will disappear and a painless removal of the root will be possible.

¶130. Teeth with curved roots will necessarily break when an attempt is made to extract them, and considerable chiseling of the bone will then be required to remove these apices. Therefore, when a radiograph reveals curves on the roots which may be expected to fracture in extraction, it is far better not to attempt to extract until the overlying portion of alveolar bone is completely removed and thus make it possible to lift the tooth out of its socket easily.

¶131. Very often a granuloma whose presence is indicated on the roentgenogram by a circumscribed shadow located at the apex of the root does not come out with the tooth when it is extracted. A curette must then be introduced into the socket and the granuloma removed. At times this may require several attempts.

¶132. Larger granulomata which cannot be curetted out through the tooth socket should be removed through an opening made in the labial or the buccal plate of the jaw.

¶133. Tooth sockets should always be carefully examined for the presence of any loose spicula of bone and fragments of the fractured alveolar process. If found, these must be removed and the sharp edges smoothed out well. Neglect to do this prevents normal healing and causes much discomfort and pain to the patient, not infrequently requiring surgical interference later. (See Fig. 113.)

¶134. Roots retained in the socket must be removed surgically. An incision parallel to the long axis of the tooth is made on the labial or the buccal aspect of the gum, the muco-periosteum reflected and overlying bone chiseled away; then the retained root may be easily liberated. After the sharp edges of bone have been rounded off, the flap is placed in position and sutured. No attempt should be made to remove such retained roots by means of extracting forceps, for, besides producing trauma and thus causing damage, nothing can be accomplished by such technic.

Fig. 113

Photograph showing exuberant granulation in a socket of a recently extracted tooth. Presence of the redundant tissue indicates that the healing is not normal, and a careful examination to determine the cause is necessary. In these cases either loose specula of bone or granulomata are, as a rule, found in the sockets. Roentgenographic examination of such conditions usually proves of great value. (See ¶133 and ¶147.)

¶135. When operating for the removal of the mandibular bicuspids, the position of the mental foramen and the mental branches of the inferior dental nerve must be kept in mind, as injury to these structures produces anesthesia of the chin, anterior lower teeth and part of the lower lip. This unpleasant feeling is often quite prolonged and the sensation is often very annoying to the patient.

¶136. During extraction of upper molars presenting periapical

areas of infection and requiring curettage, great care must be exercised not to break into the antrum with the instrument, for this may cause infection of the maxillary sinus, which often requires long and tedious treatment.

¶137. When curettage of areas closely approximating the maxillary sinus becomes necessary, a buccal muco-periosteal flap should be elevated, the overlying bone removed and the parts made accessible for a careful curettage. This will prevent breaking into the antrum and avoiding all the possible complications accompanying it. When the antrum is broken through, in spite of all precautions and care, it should

Fig. 114

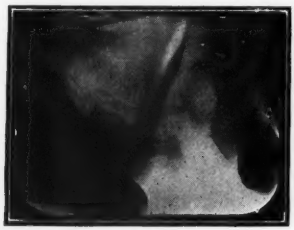


Fig. 115

Fig. 116

Fig. 114

Roentgenogram of a maxillary second premolar with a marked curvature of its root in close proximity to the antrum. During extraction the apex was fractured and in an attempt to remove it the operator forced the fragment into the antrum, as shown in Fig. 115. (See ¶138.)

Fig. 115

Roentgenogram of the same patient as in Fig. 114. This shows the root of the premolar lying on the floor of the antrum. By means of a fountain syringe, with normal saline solution, the root was washed out. (See ¶138.)

Fig. 116

Roentgenogram revealing a clear antrum. This was taken after the root as shown in Fig. 115 had been washed out. (See ¶138.)

be irrigated with normal saline solution, then closed, and the patient should be kept under observation. If no signs of empyema develop, the patient may be dismissed with instructions to return as soon as any discomfort in the antrum is felt.

Roots in the Antrum

¶138. Maxillary premolars occasionally closely approximate the antrum. If the roots are fractured during extraction, they may be pushed into the maxillary sinus, particularly when an attempt is made to remove them. Roentgenographic examination of such cases is very desirable, since it helps to locate the apex and thus facilitates the operation for their removal. (See Figs. 114-116.)

¶139. Fractured roots of the maxillary molars are sometimes forced into the antrum. Removal of these fragments often presents considerable difficulty and therefore such accidents should by all means be avoided. (See Figs. 117-119.)

Fig. 117

Fig. 118

Fig. 119

Figs. 117-119

These roentgenograms show root apices forced into the antrum during extraction of the maxillary molars and premolars. Such roots may often be removed by irrigating the antrum with saline solution. (See ¶139.)

¶140. Buccal roots of the maxillary bicuspids may be forced into the buccal fold in the course of an extraction. When this occurs, their position may be ascertained by carefully palpating the mucous membrane of the fold. (See Fig. 120.)

Fig. 120

Roentgenogram of the region of the maxillary premolars. It shows the buccal root forced into the connective tissue of the buccal fold. (See ¶140.)

¶141. Lingual roots of the maxillary molars are sometimes forced under the Schneiderian membrane lining the maxillary sinus. On the roentgenogram such a root may appear as in the antrum. (See Figs. 121-122.)

¶142. To depend upon nature for exfoliation of fractured and retained root apices is not altogether safe. In many instances these fragments, instead of being exfoliated, become embedded in the bone. Not infrequently they give rise to various destructive processes, such as granulomata, cysts, necrosis, osteomyelitis, and neuralgias. (See Figs. 14, 66, 67.)

¶143. Extracting forceps should not be too hastily applied to the

Fig. 121

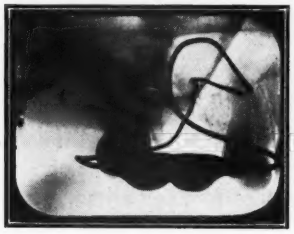


Fig. 122

Fig. 121

Roentgenogram of a maxillary molar and premolar showing an apex which *appears* to lie in the antrum. During the operation for its removal it was found to be lodged between the lining membrane of the maxillary sinus and its bony wall. (See ¶141.)

Fig. 122

Roentgenogram of the same area as in Fig. 121. After a long vain search for the apex within the antrum, wire was placed to facilitate the localization of the root. Its position is seen to be changed as compared with that in Fig. 121. (See ¶141.)

tooth pointed out by the patient for extraction. Often it is not the one indicated but the adjoining tooth that has to be removed. (See Figs. 69-73.)

¶144. Maxillary sinusitis at times causes pain simulating a toothache. A patient suffering from such a condition would insist upon the removal of certain teeth. The operator must bear in mind that extraction in such cases will not relieve the pain and therefore such procedure is contra-indicated.

¶145. Proximal cavities not easily disclosed by a clinical examination occasionally cause pain to be referred to other teeth, sometimes on the same side of the jaw and sometimes on the opposite side of either the same or the other jaw. It is necessary, therefore, to exercise the greatest care in examining the mouth to ascertain the existing condition before proceeding with the extraction. (See Figs. 70-73.)

¶146. Liberation of a tooth whose removal has presented considerable difficulty is not the end of such an operation. A careful examination of the surrounding tissues is very important. Sharp edges of the alveolar bone must be smoothed off, badly mutilated soft tissues trimmed away and the wound packed with a strip of iodoform gauze.

Exuberant Granulations

¶147. Exuberant granulations or exudation of pus from a socket, even though the roentgenogram presents no apparent bone pathology, requires that the socket be thoroughly curetted, irrigated and drained with iodoform gauze until healed. (See Fig. 113.)

¶148. It is much easier to remove a large fragment of a root than a small portion of it, therefore the removal of the overlying bone covering a badly curved root will be found better procedure than to apply force in an attempt to dislodge it. The removal of a fractured apex is a tedious process for the operator and anything but a pleasant experience for the patient, particularly when one realizes that it might have been easily prevented.

Localizing Roots and Foreign Bodies

¶149. To determine the position of a retained root in an edentulous space or to locate a foreign body in the jaws and adjacent soft structures, a roentgenogram taken with one or more needles inserted into the tissues where the object is suspected to be proves of great value. (See Figs. 123-124.)

¶150. During the operation or the removal of a root fragment from the antrum, great care must be taken to examine the gauze swabs that were used for drying the areas operated upon, for often the apex

may become entangled in the gauze and thus be removed without the operator's knowledge.

¶151. When irrigation of the antrum is performed, the return fluid should be collected in a black pus basin and carefully examined

Fig. 123

Fig. 124

Fig. 123

Roentgenogram taken for the purpose of determining the position of a broken needle. It shows two needles inserted in the tissue for localizing the foreign body. (See ¶149.)

Fig. 124

Roentgenogram taken for determining the location of an embedded root. Suturing needles are placed into the gums at the region where the presence of the root is suspected and then a roentgenogram is taken to ascertain how close to the root the needles were placed. The needles thus serve as landmarks, materially facilitating the operation for their removal. (See ¶149.)

before it is discarded. There have been instances where the operator who was ready to "give up the job" has suddenly discovered the apex lying on the patient's lap or sleeve or occupying some other similar place.

355 East 149th Street.

(*To be continued*)

Porcelain crowns were set with wooden pegs when the American Dental Association held its last meeting in Detroit.

Porcelain Manipulation

A Practical Technic for the General Practitioner

By F. R. Felcher, D.D.S., Chicago, Ill.

IV

Porcelains

Dental porcelains are composed mainly of three substances, silex or quartz, kaolin and feldspar. To these are added different fluxes and oxids, such as oxid of gold, which gives a bright red color; oxids of cobalt, which give blue; oxids of titanium, for bright yellow, etc. It is not necessary to go into the manufacturer's methods of making porcelain bodies or the formulas for producing different colors. It is safe to assume that their formulas are secret, and even were it not so, we should have a difficult time were we to attempt to produce porcelain bodies such as can be produced by those who have undoubtedly spent considerable time, money and effort in placing these materials before us.

A brief description of the composition of porcelains used will be given, so that we may have a knowledge of the materials. Further information may be obtained from technical books. Silex or quartz is the substance in the porcelain body that undergoes practically no change during the fusing of the porcelain. A small degree of change really does take place while porcelain is fusing; there is a slight fusing of silex, especially in high-fusing porcelains, although it is hardly a factor worthy of consideration.

Kaolin is the body of the porcelain composition. It is slightly adhesive, acting somewhat as the cementing portion in the wet porcelain mix, which enables the operator to build up his work. It is infusible at the temperatures we use, and, when fused, becomes transparent.

Feldspar is the uniting medium, acting only while the porcelain is being fused by combining the kaolin and feldspar into a single product. The more feldspar used in the porcelain body, the greater will be the shrinkage when it is fused. When fused, it also appears colorless and transparent. The variation of the amount of feldspar and flux governs the fusing point of the porcelain bodies. Different manufacturers make use of different types of flux in their porcelains, which also have an effect on the fusing point of the material.

High-fusing porcelains, in which the modern ceramist is most interested, are stronger than the lower-fusing porcelains. Lower-fusing porcelains have the advantage of producing a material more beautiful in appearance, due to their opaqueness when fused. They are not so strong and should be used only where they will not be subjected to too much stress. The claim is made that very low-fusing porcelains are

subject to disintegration in certain conditions of the mouth. Lower-fusing porcelains should be used for inlays in cavities at the gingival or in the proximal surfaces of the teeth. They can be used also in building up teeth or crowns that have already been fused.

In considering porcelain bodies we find that we have at our disposal those made by certain reputable manufacturers. These porcelains have a fusing point ranging from about 2500° to 2560° F. Because it is the desire of the author to encourage the use of the time bake, which will subsequently be described, it will not be necessary to pay particular attention to the definite fusing points of these respective porcelains but merely to consider them as porcelains having a fusing point near the 2500° F. mark.

There is also the medium-fusing porcelain, which has a fusing point at or near 2300° F. This porcelain is also to be fused by a time bake. Inlays, porcelain pontics, saddles, or contour or color changes should be made with these bodies.

The low-fusing porcelains on the market at present have fusing points ranging from 1700° to 1900° F. There is not much use for these porcelains, except as auxiliaries to work made of high-fusing or medium-fusing porcelain. Where the fusing has been completed and slight changes are required, they may be applied without interfering with the original bake.

There are two pink gum porcelains. Aside from their use in connection with the respective body colors such as are used in continuous gum dentures, they are used in building onto a tooth for the purpose of restoring excessive lost gum, such as is found when great bone absorption has taken place, and where by building up to the gum line the operator may improve the appearance of a bridge restoration to a very high degree.

A word here as to the application of porcelains in dentistry. There is no doubt that there are limitations to the use of porcelains. The advantages, however, are too great to be overlooked. In the use of the porcelain jacket crown there is no more beautiful or stronger restoration in the hands of the operator, especially when high-fusing porcelain is used for its construction. Toleration of porcelain by the tissues is extremely good. Where the foundation preparation is correct, the crown will be found practically indestructible.

The uses of porcelain inlays are greatest in cervical and sometimes in proximal cavities. A smooth, hard surface impervious to wear is always indicated at the cervical and there, together with the proper contour of the restoration, a replacement is made second to no other method.

The dowel crown, usually the false-appearing tooth, can be made to harmonize with the surrounding teeth by some contour changes.

In denture work the teeth of the patient may be simulated with little effort on the part of the operator, and better esthetic effects produced, which are pleasing both to the patient and to the operator. There are endless uses for porcelains in every-day practice that unquestionably produce better fees and more satisfied patients.

7616 Phillips Avenue.

(*To be continued*)

Resolutions on the Death of Joseph J. Coltune, D.D.S.

At a regular meeting of the Eastern Dental Society of Philadelphia, held on May 19, 1927, the following resolutions were unanimously adopted:

Whereas it has pleased the Almighty in His infinite wisdom to call to eternal rest our beloved Secretary, Dr. Joseph J. Coltune, who served as a faithful and conscientious servant of this Society, always holding his own interests subservient to those of others; and

Whereas his unremitting, faithful and conscientious labors are deeply appreciated and will be long remembered by his associates in the Society; be it

Resolved that we, the members of the Eastern Dental Society, deeply mourn his untimely death and deem it a loss not only to ourselves but to the entire profession; and be it further

Resolved that a copy of these resolutions be engrossed and forwarded to the bereaved family, copies be made for publication in the dental journals and lay press, and a copy be spread upon the minutes of this Society.

Sam'l Bowman, D.D.S., *President.*
David Feldman, D.D.S.
Victor H. Frank, D.D.S. } *Committee.*
Chas. B. Schupack, D.D.S.

Special Teeth for Cross-Bite Cases

By Alfred Gysi, D.D.S., Zurich, Switzerland
Professor of Prosthetic Dentistry, University of Zurich
(Literary Collaboration by George Wood Clapp, D.D.S.)

FOURTH ARTICLE

PROPORTIONS IN ALVEOLAR RIDGES

Normal Relations of Alveolar Ridges

In skulls in which all the teeth are present in such positions as to form what are commonly accepted as fine dental arches, the mandibular

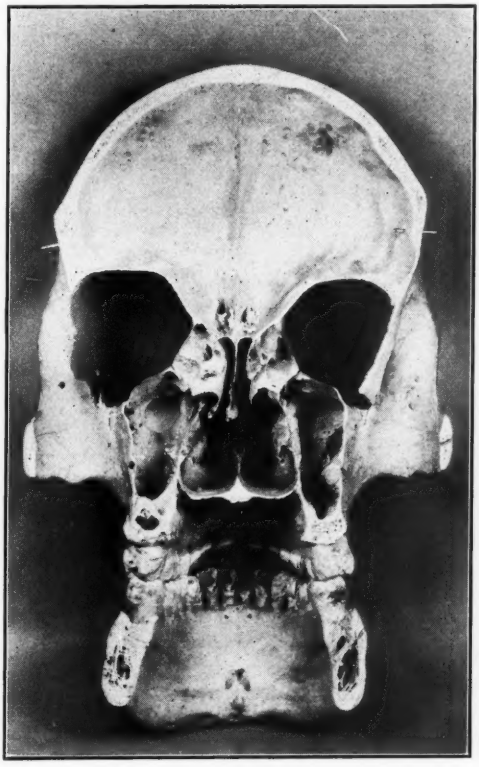


Fig. 9
Cross-section of both dental arches at the distal side of the maxillary second molars.

arch in the second molar region is a little wider than the maxillary arch, as can be seen from the cross-sections of both jaws in Fig. 9. If a skull

be held upright and a line be dropped vertically from the principal fossa of the maxillary second molar, in many cases much of the body of the mandible will be external to that line (Fig. 10). If, in such a skull, lines be drawn from the crest of the mandibular ridges to the crest of the maxillary ridges at the location of the mandibular second molars, they will be inclined, on the average, about as are the lines in Fig. 11. As identification of these lines is important in what follows, I have given to each of them the name *interalveolar crest line.* If a hypothetical occlusal plane be drawn at right angles to the median line in such a skull, the interalveolar crest line will be found, on the average, to be inclined upward and inward at an angle of from 83° to 80° to the occlusal plane. (Fig. 12.)

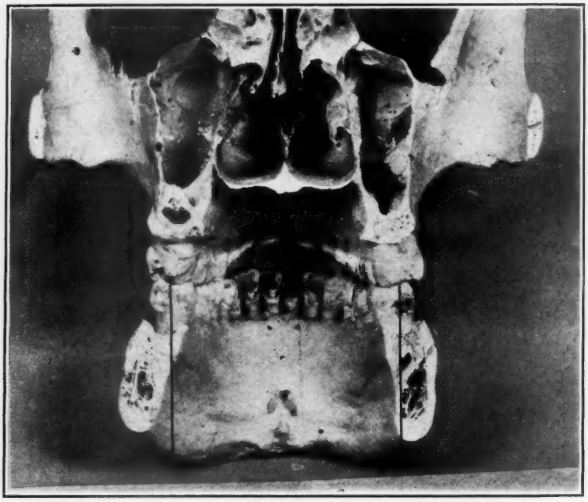


Fig. 10

The lines are dropped vertically from the probable locations of the principal fossae of the maxillary second molars. In very many cases the mandible is much wider in the second molar region in proportion to the maxilla than in this skull. The arches illustrated here would therefore form an unusually favorable case for the use of normal-bite molars, even after a good deal of resorption had occurred.

The Directions of Alveolar Resorption

All the changes that occur in the maxillae following extraction of the teeth decrease the width of the maxillary arch and increase the width of the mandibular arch. This progressively increases the disparity between the two arches. Immediately following extraction of the teeth, resorption begins at the margin of the alveoli and continues to a

greater final extent than is generally appreciated. Because the changes in the form, size and position of the arches that result from this resorption are of great importance to the prosthetist, it will be well to make a brief study of its effects.

Whatever may be the actual process in resorption, its effects will be most easily understood if it is described under two headings, *vertical resorption* and *lateral resorption.* Immediately following extraction of the teeth, resorption begins at the margin of the alveoli, as stated before, and progresses in the direction indicated by the interalveolar crest line, as shown in the diagram in Fig. 13.

At the same time, or later, resorption in the lateral direction begins. The form of the maxillary arch, together with the fact that the maxillary

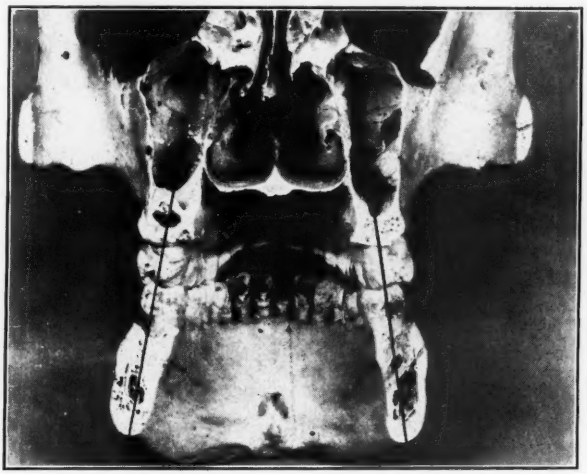


Fig. 11

The lines drawn from the crests of the mandibular alveolar ridges to the crests of the maxillary alveolar ridges will be inclined inward and upward about as shown here, while all the teeth are in good positions. In many skulls the inclination of these lines will be greater than shown here, even when the teeth are all in good positions. Following extraction and resorption, the inclination of the lines will change continuously for many years.

molars have two buccal roots and only one lingual root, leaves a thin maxillary buccal wall after extraction, which is rather rapidly resorbed, and a thick lingual wall, which is slowly resorbed. These conditions may be readily understood by reference to the diagrams in Figs. 14, 15, 16.

In the mandible the external oblique line creates a thick buccal wall, especially in the region of the second and third molars, while the

Fig. 12

The size of the interalveolar-crest-line angle is very important to the prosthetist. When it is of 80° or more, normal-bite teeth in normal relations will be satisfactory. When it is of less than 80°, normal-bite teeth are not likely to be satisfactory.

lingual wall is thin. This condition for the three molars on one side is diagrammed in Fig. 17. The lingual wall is therefore resorbed more rapidly than the buccal wall.

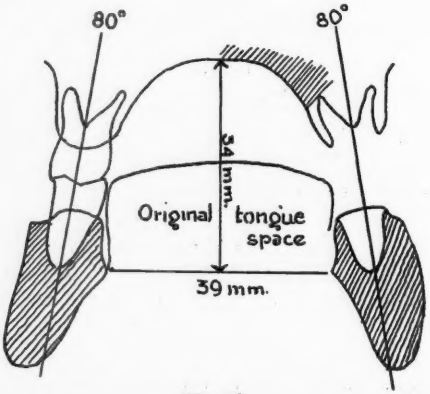


Fig. 13

Before extraction. After extraction

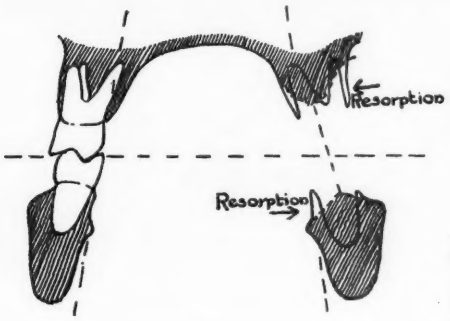


Fig. 14

The forms of both ridges, after moderate resorption, are shown by the shaded areas.

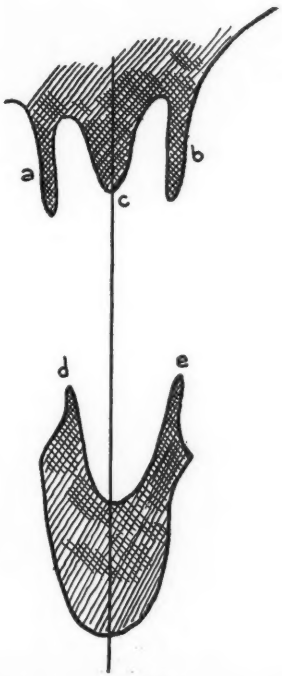


Fig. 15

Cross-sections made from life, following extraction.

Fig. 16

Diagram of occlusal view of the maxillary alveolar ridge immediately after extraction.

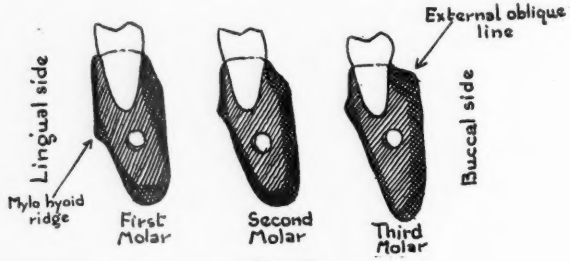


Fig. 17

Cross-sections drawn from skulls.

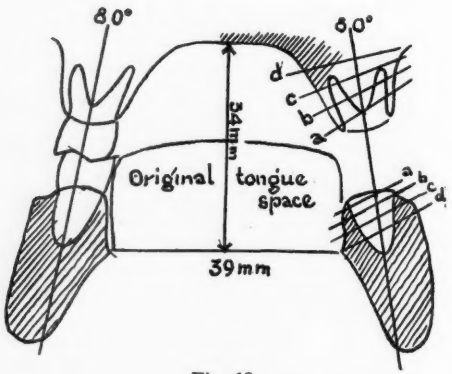


Fig. 18

Natural teeth in normal (80°) inclination. The lines, *a*, *b*, *c*, *d*, show successive stages of resorption and increasing disparity between the widths of the arches.

Resorption in both jaws may be diagrammatically represented as progressing as shown by the lines *a, b, c, d,* in Fig. 18.

The Effect of Resorption

The effect of both of these forms of resorption is gradually and continuously to move the crest of the mandibular ridge farther away from the median line and the crest of the maxillary ridge toward the median line, that is, to widen the mandibular arch and narrow the maxillary arch, both actually and in proportion to each other. As the disparity between the arches increases through the progress of resorption, the interalveolar crest line will incline more and more inward and will form successively smaller angles with the occlusal plane, as is shown by the dots at *a, b, c, d,* in Fig. 19. These angles form the best means by which dentists may differentiate the stages of resorption for which normal-bite artificial teeth will be satisfactory from the stages in which cross-bite teeth are clearly indicated.

In some patients resorption progresses so slowly that the alveolar

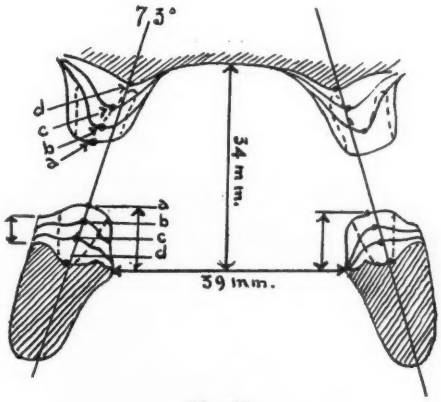


Fig. 19

Resorption does not take place in parallel levels, but in the manner shown here. The solid outlines show successive forms of the ridges. At stage *d,* the interalveolar-crest-line angle is only 73°.

ridges may persist for years without much change in form or in the direction of the interalveolar crest line. But in most cases resorption is fairly rapid and continuous until the alveolar border is resorbed, as well as considerable portions of what we have been taught to regard as the maxillae proper. In some cases resorption of the mandible progresses until the inferior mental foramen is brought within the area to be

covered by the denture. (Fig. 20.) I have had several cases in which this occurred, so that the pulsation of the artery was easily palpable beneath the soft tissue and it was necessary to form the dentures to avoid pressure on the nerve and blood vessels at this point.

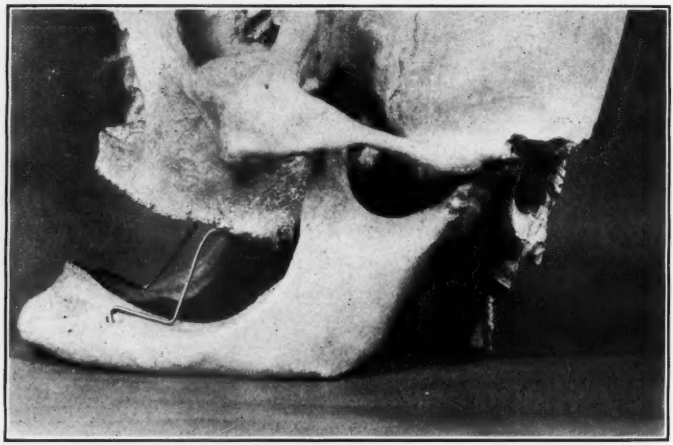


Fig. 20

In some cases at least, resorption progresses until all of the alveolar process is gone, as well as some of the maxillary bone. Sometimes the inferior dental foramen is even more directly on top of the mandibular ridge than is shown here.

Fig. 21

Frontal and sagittal sections of atrophical lower jaw inserted into the corresponding sections of an intact jaw. (The School of Dentistry, Copenhagen.)

Professor Bloch has shown* that resorption affects not only the alveolar border of the mandible but all portions of the bone, as in the cross-sections that form Fig. 21.**

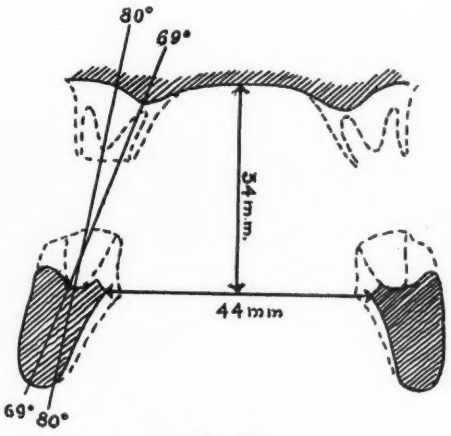


Fig. 22

The distance of 44 mm. at the level of the mylohyoid ridge may be due partly to resorption and partly to a mechanical widening of the mandible.

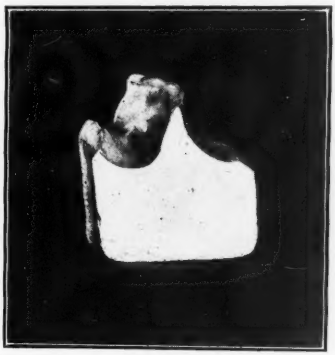


Fig. 23

Cross-section of a plaster cast of a mandibular ridge which has remained thin and high. This form of ridge often renders satisfactory denture construction very difficult.

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* *Atrophical Changes in the Shape of the Human Jaw Bones,* by Prof. V. Bloch, Copenhagen, 1919.

** Ibid., Fig. 19.

Resorption may progress to such a degree that even without any further approximation of the jaws the interalveolar crest line will be inclined inward at an angle of only 69° to the occlusal plane, as shown in Fig. 22. With the approximation of the jaws which occurs in some edentulous cases, the inclination of this line may be reduced to 60°.

Thin Alveolar Ridges

One very important effect of resorption which has made many difficulties for prosthetists is illustrated by the section of a cast in Fig. 23. Here the ridge has remained high, but the bony formation is very thin and the occlusal margin is sharp. Sometimes this margin is rough. Not only are such ridges a serious handicap to the construction of successful dentures because of their form, but they are incapable of sustaining the force which it is possible for a patient to exercise through well-made dentures.

The persistent trouble which such dentures cause to dentists and patients may be partly overcome by the use of special forms of cross-bite teeth, which have all the cosmetic value of other teeth and a moderate degree of masticating efficiency.

(*To be continued*)

Sixty-eight years ago, when the American Dental Association was organized at Niagara Falls, Detroit was a tranquil village and ranked thirty-fifth in population. Today, with her 1,600,000, the Automobile City is fourth in the list of American cities.

Developments in Indirect Inlay Technic

By Louis I. Abelson, D.D.S., New York, N. Y.

(*Continued from May*)

Impression-Taking

The impression material best suited for this work is modeling compound in stick or cone form. This material softens to the proper working consistency at a temperature tolerated by vital teeth and rarely, unless overheated, causes any discomfort. The prepared cones come in assorted sizes and most often will fulfil our needs, but if the size is such that the base does not exceed the tooth diameter by two or three millimeters, it is safer to make a cone from the stick form. In making these cones we must under no circumstances bend over or knead a

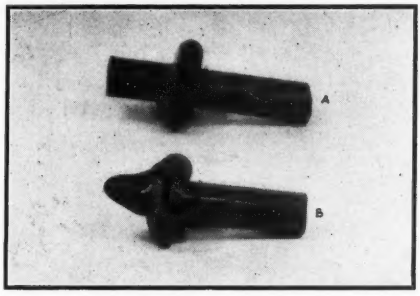


Fig. 17
A—button on modeling compound stick.
B—finished cone.

warmed portion that would enclose air spaces or creases. Somehow it seems that in our impressions fate always brings these folds and air spaces to light on vital areas such as bevels and margins, resulting in imperfect dies and, consequently, in imperfect restorations.

To make any desired cone without wrinkles or air spaces, warm a small section of a modeling compound stick about ½ inch from the end over a fine-pointed Bunsen flame until the heated short end is just warmed through and nearly bends over. Slowly push both hard ends together, producing an enlarged section at the heated point (Fig. 17-A). Chill in cold water. If the unchanged short tip is over ⅜ inch long, cut down to this length and warm this ⅜-inch tip over a low Bunsen flame, moisten, and with wet fingers mould the cone to the required shape, always pushing (not folding) toward the base. We may, however, trim this square end to a point with a sharp knife (Fig. 17-B). Now cut off the prepared cone at its base.

With the impression tray or band in place, the saliva ejector inserted in the patient's mouth, and the syringe filled with room-temperature water, warm the apical half of the modeling compound cone selected for the tooth until the tip begins to sag and lap over. This acts as a warning against continued heating, since increased temperature would soften the entire mass and defeat the purpose of compression by doing away with the solid plunger action of the hard base.

Send the heated tip into the approximal space. The oversize of the cone will force the compound into the entire approximal area, compressing the soft compound entering the occlusal preparation and gripping the tray, thus making a unit of the compound and the tray. With pressure still maintained, cool thoroughly with room-temperature water and remove carefully in the long axis of the preparation. At all times

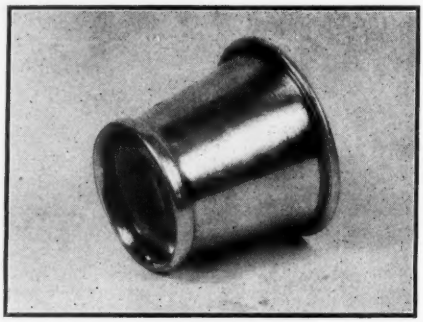


Fig. 18
Jeweler's loop.

avoid excessive force, the process being one of teasing off rather than violent tearing. Examine carefully for defects, preferably with a jeweler's loop (Fig. 18), which leaves both hands free. This magnifying glass may be obtained at any jeweler's supply store for a very small sum. If wrinkles, air spaces or any imperfections appear at vital points, rather discard the impression than construct an inevitable failure.

At this point make notations of any special compensations or conditions of occlusion, the type of metal to be used for the purpose the restoration is to serve, the positioning of windows for fused porcelain or silicate cements, etc.

Taking the Bite

Although a correct impression is the most important factor in this technic, it by no means stands supreme. It is the element that serves

as a means of obtaining the proper sealing of the tooth operated upon, but nature has endowed mankind with complexities of tooth form and structure necessitating operative procedures far more intricate than simple plugging. Our observations have ofttimes disclosed irregularities in periodontal tissues and tooth arrangement due to the improper contouring and building of inlays.

The taking of a correct bite is essential for transferring the occlusal relationship to the articulator. This does not necessarily imply that the bites must be partial wax impressions involving the muscular attachments but rather a simple step, as the name implies. The resulting casts, although not picturesque, are more accurate and are not the results of a twisted and distorted partial impression wax bite.

Let us first describe the wax sandwich used in recording the bite. It consists of a strip of pink paraffin wax and one of beeswax about

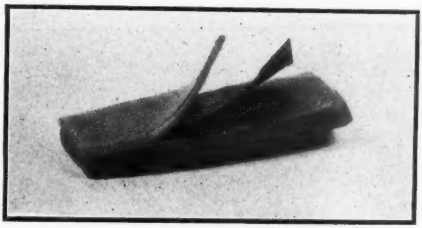


Fig. 19

Wax bite sandwich consisting of one layer of beeswax and another of pink wax with a strip of copper foil between.

5/8 inch wide by 2 inches long, with a strip of copper foil slightly smaller between them, the entire sandwich being sealed around the edges (Fig. 19). The purpose of this arrangement is manifold, the copper foil especially offering the least likelihood of being bitten through. Tin-foil has been quite unsatisfactory in the very close-bite cases and at times embarrasses the operator by his inability to manipulate the bite with safety from distortion during the laboratory construction.

The beeswax is a comparatively soft material to bite into and because of its thickness gives a sufficient working registration of the crowns of the teeth for the construction of satisfactory working casts. The pink wax is harder and therefore is used as the side to record the cavity preparation. This difference in texture is necessary because of the slight pressure incident to seating the die in the bite, a procedure obviously impractical with beeswax. Further to insure complete registration of the cervical floor and slice at the gingival, add a wedge of

pink wax to the pink side of the sandwich, where the approximal preparation is located (Fig. 20-A). We shall take up the technic of its attachment and use later.

Technic of Taking the Bite

Warm both sides of the sandwich over a small Bunsen flame, at all times avoiding melting and overheating. Keep turning and moving over the reduced flame until the entire wax sandwich has assumed a nice pliable consistency. Select one of the pink wax wedges, unheated; warm the base and set it on the pink side of the sandwich in the region where the approximal preparation will be registered, always being mindful that we must record as many posterior teeth as possible in the bite to guide the manipulation of the articulated casts (Fig. 20-C). The pink wax wedge must not be melted to the sandwich, since this pro-

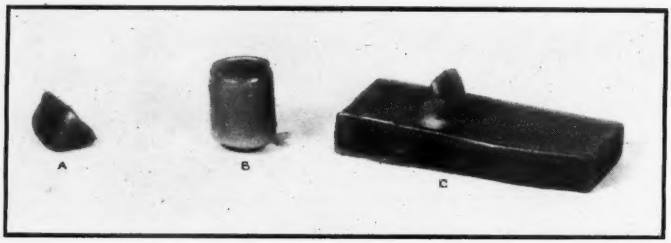


Fig. 20

A—pink wax wedge.
B—pink wax cylinder.
C—bite sandwich with pink wax wedge mounted.

cedure would soften it completely and prevent compression by its hard center from getting the full approximal preparation.

Pass the warmed sandwich once through the flame to glaze the wax wedge (two for an M.O.D.) just slightly and place the sandwich in the mouth, sending the wedge into the approximal preparation first; then press the sandwich so that the pink side makes contact with the occlusal surfaces of the corresponding jaw; have the patient close as far as he can, and observe the accuracy of occlusion by examining the opposite side for proper interdigitation. With the mouth firmly closed, adapt the extruded wax buccally to the buccal surfaces of the upper and lower teeth, chill thoroughly and remove. Under no circumstances permit or request the adaptation of the wax lingually by the patient's tongue, for almost without exception the mandible will swing with the tongue movements and result in a poor registration of the bite with no help to the impression so obtained.

We should now have the occlusal half of both sets of teeth lingually, the full buccal sides of both jaws, a complete impression of the approximal preparation, and an accurate record of the adjacent tooth as a guide for the building of the contact point and approximal contour (Fig. 21).

The cavity is now sealed, as outlined before, by drying with a snap air blast, lining with varnish and sealing with baseplate gutta-percha. For compound cavities heat a small square of base-plate gutta-percha, form it into a roll and pinch each end on the opposite sides, producing a double wedge, one at right angles to the other, both bases being together. With no further heating of this gutta-percha, which is still mouldable and by this time not too hot for the tooth, press one wedge into the approximal box and the other, which is at right angles and therefore narrower mesio-distally, into the occlusal preparation. Al-

Fig. 21
Completed bite.

ways exercise care not to overcompress the cervical tissues, but maintain a slight tension to prevent the soft tissues from growing into the cavity. Now, with a hot amalgam instrument, cut off the excess to accommodate the occlusion. Always avoid the use of temporary stopping, which is a very unreliable material at best and is always subject to continual spreading under the stress of mastication, doing untold injury and destruction to the periodontal structures.

Complex and M.O.D. Cavities

These types of preparation as a rule are not so characteristic as a simple occlusal or an M.O., each being an individual problem to be solved in its own manner but never at the expense of the fundamental principles of cavity preparation. The following rules may act as a guide against some of the frequent infringements practiced in complicated cavity preparation:

(1) Never permit frail walls to come into occlusion without

first being prepared for shoeing. Frail walls, consisting of enamel only, are best removed and the tooth prepared for restoration with a cast core porcelain jacket crown.

(2) Avoid large approximal box preparations, avoiding them entirely in short-bite cases or reducing them to a narrow box or groove.

(3) Make sure that all axial surfaces are parallel or, better yet, slightly divergent occlusally, remembering that an apparently straight, smooth surface will be a marked undercut if convergent occlusally with any of the other axial surfaces in that preparation.

(4) In recessions, if you cannot prepare one cervical step across, make a double step, the lingual one being prepared more occlusally.

(5) Study the occlusion and articulation in the mouth to make sure that a wall to be shoed has been sufficiently dressed to permit beveling and covering with an adequate amount of metal without producing traumatic occlusion.

In impression-taking we use the modified band technic, avoiding the involvement of areas beneath the bulge of the tooth and beyond the margins of the preparation, utilizing wings (as described before) as controls for the prevention of the over-driving of the band in taking the impression. The cone is used in the same manner as for the M.O. or D.O., only we must allow for a little more soft compound to fill the entire cavity before the harder mass begins to compress the softer material. If we do not get the impression at first (and this applies to all types of cavity), remove all the compound from the band or tray and start anew, trying to locate the error. An attempt to correct an imperfect impression almost always fails.

310 West 72nd Street.

(*To be continued*)

A CORRECTION

On page 437 of the June issue of THE DENTAL DIGEST, "200 lbs. test" should read "20 lbs. test."

Togo's "Discursions"

Mr. Editor of Slight Dental Magazine
Resembling Outdoor Photography

Hon. Sir:

Enjoyably deflated feeling denoting lassitude of Summer Season is now submerging all intellects; therefore letter of Japanese origin will delicately reflect debilitated condition of Mid-Summer brain fag, thank you.

Practice of Dentistry Mr. Editor consists of peculiar variety of team work between Hon. Patient and Doctor of D.D.S. degree who is sometimes correct in hopeful inference that he will ultimately be paid for doing so if services rendered prove slightly satisfactory to members of family, friends and other etc. who compose anvil chorus chiefly engaged in adverse criticism. Therefore gentle art of pleasing patients when present in Hon. Office becomes of great importance and should be studied as profitable side line of dental activity whenever opportunity offers—which is frequently.

Wide variety of experiences enjoyed by Japanese office boy while infesting numerous locations where dentists were attempting to make slight living while practicing leads to several conclusions of noticeable variety and interest.

Early in delightful career as cuspidor cleaner and plate polisher important fact was observed that Dr. Goode Mixer had large and fashionable practice in spite of regrettable fact fees were high and all fillings inserted were extremely temporary regardless of materials employed; while Dr. Grouche E. Genius had difficulty in securing occasional subject for installation of beautiful and permanent restoration of great durability at reasonable cost.

Great open spaces of all human brains contain many strange phenomena; several of which provide delicious alibis for dental work of hopeless inferiority when installed and recommended by ambidextrous salesman untroubled by active conscience or proper sense of decency and fair play.

Nearly all patients regardless of age, social position, financial standing or other common impediments derive peculiar satisfaction from information similar to following: "Very regrettable softness of your Hon. teeth causes discouraging departures of all fillings and most inlays even when most skillfully installed by expert operator resembling myself.

"Your case Hon. Sir presents difficulties of such extreme intensity that several nights of sleeplessness have resulted to my humble self in contemplating possible remedies, if any, calling for great expense and other sacrifice too numerous to broadcast."

Peculiar effectiveness of these and several allied forms of bologna and banana oil are due to presence in nearly all adult minds of peculiar form of Egotism which experiences small but delicious thrill resulting from capacity to easily believe that any form of personal difference from vulgar herd in matters of disease is distinctive mark of superiority and denotes high degree of mental development when present.

Therefore D.D.S. of plentiful conversational activity convinces patient afflicted with numerous fillings and inlays of dropsical tendency that fault is entirely in regrettable softness of Hon. teeth which causes entirely worthy restorations to abscond with distressing frequency. Therefore phenomenon is often encountered of entire families continuously suffering for many years from dental services of almost unbelievable inferiority in full conviction that "soft teeth" are completely responsible for results consisting mainly of recurrent decay, lack of contact, lost chewing efficiency, exposed pulp and other distressing etc.

Absence from city on well earned vacation (?) of D.D.S. responsible for such distressing by-products of professional inferiority occasionally causes unwitting victim to seek needed relief from dental sufferings elsewhere. If man appealed to for temporary touch-up happens to be skillful operator of considerable tact and judgment, loud moans of regret are soon heard proceeding from enlightened patient who presently learns that "soft teeth" mean as little to strictly modern dentist as a patch of freshly broken rock means to modern balloon tire carrying proper load and air pressure. Silent departure of entire families from offices where conversation has been more important than contact points and where the gold inlay and porcelain jacket were unknown has frequently occurred as result of a single member going to office where real dentistry of 1927 model was properly installed by man in no way related to late Jesse James or other highbinders.

Greatest possible boon to Public for whom dentistry is installed would be magical invention whereby several tooth restorers could install services on competitive basis with price mark attached in each instance. Intelligent patient could then test each equipment of fillings, bridges, ½-Acre plates and other interior facial benefits on standard meal, refer to price tag attached, and easily decide which offered greatest road ability for cash money requested in payment for same.

Greatest need of Dentistry today Mr. Editor is not improved instruments or methods of doing so, not more curtains, carpets, and other etc. in Hon. Reception Room, but more mental alertness and basic honesty on part of Dentist who is tempted during delightful daylight saving hours to overlook proper cavity margins and contact points in order to make eighteen holes grow where only nine were grown last week.

Hoping you are the same,

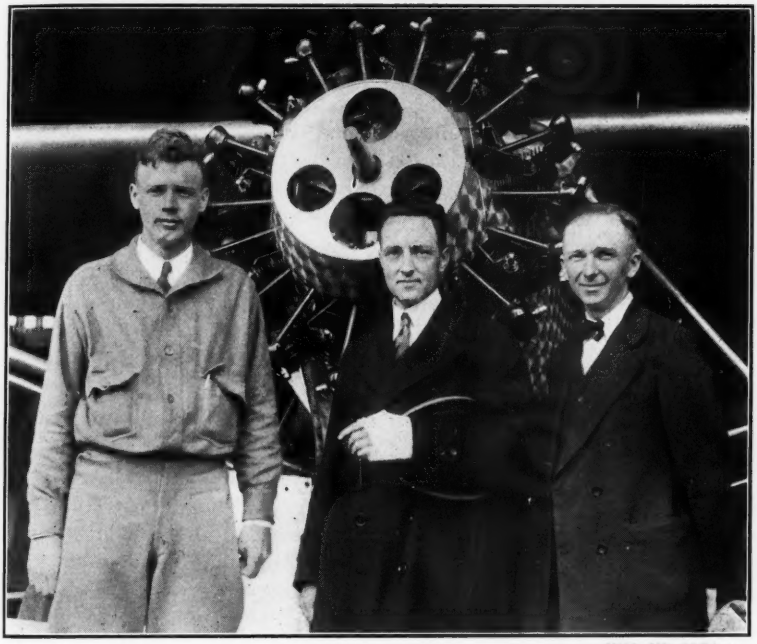
Togo.

Col. Chas. A. Lindbergh—Lt.-Com. Richard E. Byrd Clarence D. Chamberlin

THREE WORLD-FAMOUS FLIERS WITH THE SAME TYPE OF FACE

By George Wood Clapp, D.D.S., New York, N. Y.

No dentist who reads the papers should ever again have any difficulty in recognizing the tapering form of face as it has been illustrated and described by Dr. Williams.



Wide World Photo.

The characteristics of the typal tapering form of face are that it is wide at the condyles in proportion to its vertical length, the cheek lines are straight or a little hollow and converge noticeably toward the angles of the jaw, the cheeks converge rather rapidly forward, and the chin is of not more than medium width.

Col. Lindbergh and Clarence Chamberlin are apparently fine representatives of the tapering form, while in Lt.-Com. Byrd there is apparently an intermixture of some of the square type.

The mental characteristics of this type, so far as they are known, correspond closely to what we know of these men. They include mental alertness, quickness and clearness of decision and good executive ability.

Detroit the Ancient—Detroit the Wonderful

By Pat J. O'Reilly, M.D., D.D.S., Detroit, Mich.

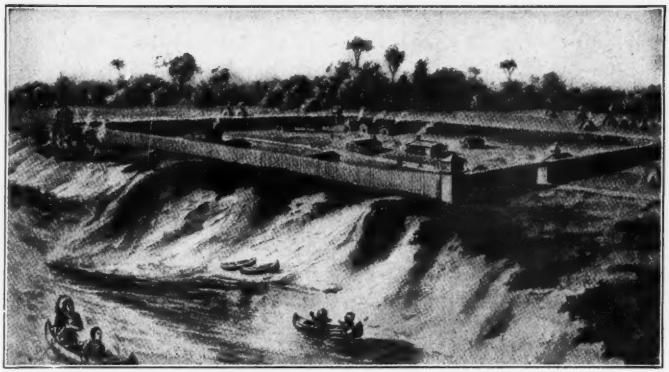
When Henry IV still sat on the throne of France—and you will agree that was a long, long time ago—the present site of Detroit was pointed out by the Indians to Champlain, the founder of Quebec, as the natural gateway to "the vast sea of sweet water." Then was born the dream of a "New France" on the American continent. That was the beginning of what is Detroit today.

Just a dream! Nothing was done to make that dream a reality until ninety years later, when Louis XIV commissioned Sieur Antoine de la Mothe Cadillac to found a settlement there. Cadillac had been at Mackinaw from 1694 to 1699. It was in July, 1701—to be exact, the 24th day of that month and year just two hundred and twenty-six years ago—when Cadillac with his little fleet of birch-bark canoes entered the broad, clear, beautiful river running out of Lake St. Clair. He had with him 50 soldiers, 50 emigrants, four officers and two priests. He formed a temporary encampment under the great spreading trees and within two days laid the foundation of a church in which to worship God after the manner of his fathers. The stockade which he built, supposed to have included about twenty acres, was located on the first rise of ground near the river in what is now the downtown business part of the city.

Feeling that the foundations of a city could be only as firm as the foundations of the home, Cadillac dispatched a messenger to Quebec for his wife in order that the good influence of the gentler sex might be felt in the shaping of the destinies of the new community. An early writer tells us that "Madame Cadillac plunged into the wild wilderness to rejoin her husband. It was a thousand miles in a birch-bark canoe, rowed by half-clad Indians or still more savage half-breeds, and the route was through a dense forest and over great seas swept by the September storms, but this brave woman undertook the journey attended by only a single female companion." When subsequently reminded of its hazards and hardships, she simply replied, "A woman who loves her husband as she should has no stronger attraction than his company, wherever he may be; everything else should be indifferent to her."

Cadillac has been censured by some historians for his rashness and prejudices, but, irrespective of what his faults may have been, he must have possessed some noble traits of character to have inspired such strong devotion. Such was the man who founded Detroit—the city you shall gaze at in very wonderment next October.

Detroit was for nearly sixty years a French town—a bit of sunny



Detroit the Ancient—Fort Ponchartrain—1701.

France hidden away in the heart of the western wilderness. Shortly after Wolfe had scaled the heights of Quebec in 1759, the surrender of Detroit took place and it became subject to English rule and so remained until it was transferred to the United States following the peace of 1783. Thus we see Detroit has had a unique history.

In 1782, just before it became the property of the United States of America, a census shows that it had then a permanent population of 2190, while another census in 1796 gave it only 500. The falling off is to be attributed to the withdrawal of the British garrison and the exodus of English people, which occurred with the change of government, as most of them went back to Canada. In 1805 it had a popula-

Detroit the Wonderful—Grand Circus Park—1927.

tion of 2000. Then it took a long and peaceful slumber, for in 1828 its population was only 1517. In 1830 it began to grow slowly and thus it has continued until today it numbers far more than a million.

In its early days Detroit became the emporium of a vast trade in furs, and the wealth that gives leisure for cultivation soon brought its best society to a condition of refinement rivaling that of the seaboard cities. The extent of the trade in furs, considering that it was conducted over the lakes eastward in birch-bark canoes altogether, was a thing that strikes us with astonishment. When the English took possession of Detroit in 1760, they found a storage here of furs of the value of half a million dollars, and later on as many as 200,000 beaver skins were shipped in a single year.

It is a long way from an annual output of 200,000 beaver skins to 200,000 Fords, but that is what tells the history of Detroit! When you stop to realize that Detroit has dealt in both skunk skins and gasoline, the change does not seem so great, for in this regard Detroit the Wonderful is odoriferous, much the same as Detroit the Ancient. It is simply a question of taste—or smell!

Let us now refer to Detroit the Wonderful—the city of a thousand industries and the home of the automobile.

For the first time in more than fifty years Detroit is to have the honor of entertaining the American Dental Association in annual conclave. To prove that the lapse of time has not dimmed the desire to be the magnanimous host, the dentists of Detroit and the whole State of Michigan are lending every effort for a successful meeting and will meet you and greet you with a spirit of cordiality and whole-hearted welcome.

We who by fates unusually kind dwell in this wonder city of the world shall deem it a privilege and a happiness to welcome to our gates and within our homes both the dentists of America and their wives. We are proud of this honor to be ours in October. We expect to have the best time of our lives and we are going to try to make every visiting dentist and every guest feel that this National Convention is the best in the history of our organization, that there is nowhere else such a hospitable class of professional men and women as can be found in Detroit, and that Detroit itself is the best city in the land.

In other words, we are going to give you the time of your lives. A convention you will never forget is what we are aiming at. To that end, we, all of us, from the oldest to the youngest member, are going to stand with extended arms and open hearts to greet you and treat you as friends united to us by strong bonds of professional friendship.

Detroit has become known the world over as the city where "life is worth living." It is growing faster than any other city in the world. Subdivision lots are as plentiful as patients in Detroit, and unless you

watch your step, some enterprising salesman will sell you a lot in one of our outlying sections. Subways have not come yet, but they are being talked of! Golf courses clutter up the landscape, and recreation is as essential to its inhabitants as business and manufacturing.

Detroit will be a city of 2,000,000 people within the next few years. Its present estimated population is 1,267,354, and may be increased considerably by the time you read this, so rapid is our growth.

You won't be among strangers here in Detroit, for we have weekly arrivals from almost every State in the Union, and from Canada and Mexico as well. Even the dentists from other States find Michigan as attractive as California and Florida, and when seeking a change of location feel the beckoning call of the automobile state.

Detroit is the oldest city in the United States between the Alleghany Mountains and the New Mexico plains—but, like the old, old story, it is ever new.

Detroit is the fastest growing metropolis in the world—but her industries, her commerce and her architectural construction are on substantial foundations.

Detroit has lived under three flags—French, British and American—but extends a heartfelt welcome to the whole world.

Detroit has 71 hotels with 26,110 rooms, providing accommodations for 43,430 guests, and we hope the dentists of America will crowd every room next October.

PRACTICAL HINTS

This Department is now being conducted from the office of The Dental Digest. To avoid unnecessary delay, Hints, Questions and Answers should be addressed to Editor Practical Hints, The Dental Digest, 220 West 42d Street, New York, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule. This Department is conducted for readers of THE DENTAL DIGEST, and the Editor has no time to answer communications "not for publication." Please enclose stamp if you desire a reply by letter.

Editor Practical Hints:

There is a controversy between two men on the legal rights of a patient to demand the x-ray picture of a tooth taken by his dentist.

A claims that the dentist is making a diagnosis for which the x-ray is merely an aid, and in that case the patient is entitled to know the result of the picture made for diagnostic purposes but not to have the x-ray itself. *A* also cites the instance of fluoriscopic examination, where there is no record and the patient pays for diagnosis only.

B claims that, having paid for the picture, the patient is entitled to it—just as he would be in the case of a purchase of merchandise.

Another question: A dentist refers a patient to a roentgenologist for x-rays and diagnosis. If the roentgenologist gives a written diagnosis, has the patient, by virtue of payment of fee, a legal right to demand x-rays for her own private possession?

M. E. S.

ANSWER.—It is my understanding, without having had legal opinion myself upon the subject, that *A* is right. This would also cover the second question, as it is nearly the same question, whether a written or oral diagnosis is given to the patient.—G. R. WARNER.

Editor Practical Hints:

Under separate cover I am mailing some x-ray exposures of the upper jaw and some pictures of the head. We are more or less suspicious that there may be some antrum trouble, but my knowledge of reading films is so limited that I am not positive.

The upper right second bicuspid has broken down since these pictures were made. However, while the lingual wall went when the inlay broke out, it could be repaired provided the tooth shows no pathology, and if in your opinion it would be good dentistry.

Periodically the patient complains of shooting pains on each side of the upper jaw, pains that seem to start along the alveolar ridge and radiate upward and slightly backward to the floor of the eye.

I shall appreciate it very much if you will give me your diagnosis of these pictures.

E. D. H.

ANSWER.—The sinus radiograms which you submitted show no evidence of sinus involvement. The frontal, ethmoid and maxillary sinuses are all apparently normal. The right superior second bicuspid shows some thickening of the lamina dura and indefiniteness of outline in the periapical region and is therefore a possible focus of infection, so in light of the patient's history and the broken-down condition of the teeth I should advise its removal. The roots of the left superior first molar, while not well filled, look reasonably normal in the periapical regions, so it is probably safe to leave this tooth in place.—G. R. WARNER.

Editor Practical Hints:

My wife is having a good deal of trouble with facial neuralgia, and I thought you might give me a little help.

History: Age 38, very nervous and somewhat anemic. Four years ago she had what she called a toothache in the three molars of the left upper jaw. I x-rayed them and filled a few small cavities, but could find no reason for the pain. She was badly run down, so I sent her to an open-air sanitarium for a rest cure. She was there six weeks and was compelled to take something two or three times every day to relieve the pain, but finally it stopped about the fourth week of her stay there. Since that time it has come back at intervals, but not severely.

About six weeks ago it came back with a vengeance. It begins in the upper teeth and then settles in the lower third molar, which is the only molar she has in the lower left jaw. I have examined them carefully a number of times and x-rayed them, but can find nothing. She has taken so many pain tablets that she is afraid of the ultimate effects of them.

Severing that branch of the fifth nerve as it leaves the Gasserian ganglion would be a difficult operation and would cause the facial muscles to sag. Also, since the pain is in one jaw and then in another,

we should have to sever both the inferior dental and one branch of the superior maxillary, and that doesn't sound good to me.

Then I have thought of the injection of pure grain alcohol. It must be very painful to make that injection, and how much should I inject for each nerve? I understand that the subsequent injections are not satisfactory. She does not want to leave the family to go and try another rest cure, and she is not run down physically now as she was four years ago.

F. A. V.

ANSWER.—Facial neuralgia or tic douloureux is one of the most illusive and unsatisfactory conditions with which we have to deal. There are so many causes, direct or indirect, that it is most difficult to arrive at the cause in a given case.

The general health has a bearing, and anything that can be done to improve general health conditions should be done. In the mouth all pulp irritations of whatever nature, whether from deep caries, infection, pulp nodules, extremely large fillings or extreme wear, should be considered as complicating factors. We have the possible source in the mandible of a closing in of the inferior dental canal. This is not likely to occur, however, in as young a woman as your wife.

After having exhausted everything that can be thought of in the way of local and general treatment, I would, before using alcohol, use novocain. If novocain anesthesia gives complete relief, then it would be well to use the alcohol, and the proper preparation to inject is as follows:

Novocain	2%
Chloroform	5%
Alcohol	70%
Aqua Pura	23%

If it is injected slowly, it is not painful, and I certainly should use this injection before considering operative procedures.

—G. R. WARNER.

Editor Practical Hints:

Teeth with dormant abscesses usually progress to the third stage after their removal, which results in swelling.

After the removal of all teeth I advise the patient to apply a cold compress for an hour. And in case there is a swelling later I advise the application of a poultice to reduce it.

Please advise me whether this is the proper procedure.

I always curette chronically abscessed teeth but never those in the acute stage, yet in many cases there follows a slight swelling.

Your advice on the matter as to what applications to apply to reduce these swellings will be appreciated.

P. K.

ANSWER.—Your letter indicates that you are handling the removal of infected teeth in the approved way—cold compresses immediately after extraction, not only for an hour but for several hours, if it has been a severe operation. Hot compresses and poultices should not be used for these cases until the swelling has assumed a chronic condition and then only for a short period of thirty minutes at a time. If applied over longer periods, you get no more beneficial results than for a short period and there is a tendency to the breaking down of tissue.—G. R. WARNER.

Editor Practical Hints:

I have a very amazing and disagreeable case on hand that calls me to write to you for an answer.

This individual, aged 29, has an x-ray burn on her right hand. It has been undergoing treatment for more than seven months. Pains have been shooting up through her right arm into the right side of her face and head, causing two or three teeth on that side of her jaw to ache. These pains started about two months ago. The teeth were x-rayed and showed that two teeth on the right side, namely, the second bicuspid and first molar (lowers), have been treated, but they do not appear to be abscessed. In fact, the gums are in very good condition.

The question is that she wants her teeth out, that is, her physician wants the teeth out, claiming that all the pain is coming from her teeth. I refuse to take them out, claiming that all the pain is coming from the x-ray burn on her right hand, which to date is far from healed over.

The x-ray specialist at the hospital saw her hand about two weeks ago. He stated that it will require about four or five more months for it to heal.

What would you advise in a case like this—extract her teeth now or wait for further results about the burn on her hand? Also, what can be used to stop those streaking pains?

H. S. L.

ANSWER.—Without seeing radiograms of the pulpless teeth any advice given will have to be general.

In the first place, pulpless teeth are somewhat of a menace even when they are radiographically normal, and radiographically normal teeth are quite rare. In this particular case the x-ray burn offers a real

reason for eliminating all possible sources of infection; therefore, even though the pulpless teeth in question may be innocent, as far as complicating the treatment of the x-ray burn is concerned, it would seem wise to give the x-ray burn the benefit of the doubt and remove the pulpless teeth. It would seem wise also to remove all demonstrable infection from the mouth, such as that resulting from periodontoclasia, retained root tips or residual areas.—G. R. WARNER.

Editor Practical Hints:

I have constructed over a couple of thousand full upper and full lower dentures in my twenty-five years' practice, but am now confronted with an unusual case and am therefore writing you for information upon the following:

A patient of mine, aged about 49, had the right side of the mandible fractured in the bicuspid region by a gun-shot wound about twenty-five years ago. At this particular point there is not a fixed union. The approximating ends are movable. It will be necessary to extract the few upper and lower teeth he now has within a few months and then insert full upper and full lower dentures.

When maxilla and mandible are ready for impressions, would it be better to take the impression for the mandible with plaster or compound?

Should I proceed in the impression-taking and construction of these two dentures the same as in a mandible not fractured?

What results, with reference to the patient wearing these dentures, can I expect in this particular case?

H. B. W.

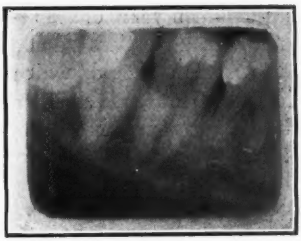
ANSWER.—In all probability your patient would be unable to wear a lower denture with the ununited fracture. It would be wiser first to operate on the fracture and get a union and then, of course, the matter of the denture is reduced to the usual procedure.—G. R. WARNER.

CORRESPONDENCE

St. Edward, Nebraska.

Editor, DENTAL DIGEST:

I am enclosing a film taken recently in my office which I consider a somewhat rare case.



As you will notice, two wisdom teeth are visible.

DON T. CLARK.

Glasgow, Scotland.

Editor, DENTAL DIGEST:

On page 274 of the April issue of THE DENTAL DIGEST there appeared details regarding the license to practise dentistry in the United Kingdom of Great Britain and Northern Ireland. The particulars given in the article are, I am afraid, a trifle confusing and also slightly inaccurate.

It is necessary to hold the diploma of L.D.S. before one can embark on the practice of dentistry in this country. This diploma is granted, after examination, by the following bodies: The Royal College of Surgeons of England, The Royal College of Surgeons of Edinburgh, The Royal Faculty of Physicians and Surgeons of Glasgow, and the Universities of Belfast, Birmingham, Bristol, Durham, Liverpool, Manchester, St. Andrews and Sheffield.

The names of all the holders of this diploma must appear in the current issue of *The Dentists' Register,* this being the only legal proof accepted by the general governing body, namely, The Dental Board of

the United Kingdom, which has its headquarters at 44 Hallam Street, London, W.1.

Any one in the United States of America who is desirous of proceeding to the L.D.S. diploma should communicate with any of the registrars of the licensing bodies enumerated above. The Dental Board considers on their merits applications from dentists holding foreign qualifications who are desirous of practising in Great Britain.

J. MENZIES CAMPBELL, L.D.S., D.D.S., F.R.S.E.

Mexico, D. F.

Editor, DENTAL DIGEST:

A short time ago I had a curious experience which may be of interest to your readers.

A young lady, about eighteen years old, had been given dental attention by a medical doctor who advertises "dental office annexed." She complained of a loose lower left cuspid, which had been subjected to treatment based on "iodine injections," as she put it. As the tooth was getting worse instead of improving, the doctor decided to extract it. Before having this done, as the cuspid looked perfect to her, she decided to consult the writer.

Examination disclosed a loose tooth without caries, without traumatic occlusion, without appreciable periodontal lesions, but—a deciduous one!

P. CARTER.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of THE DENTAL DIGEST, 220 West 42nd Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42ND ST., NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

If a solution of plain soap and water is used in the sterilizer, instruments will stay bright indefinitely. Some of mine have not been polished for years and are in perfect condition. Of course, they must be wiped dry while still hot. The solution has a tendency to boil over if kept too hot, but will not do so if low heat is used.

(Dr.) L. A. S., Los Angeles.

We appreciate Dr. L. A. S.'s sending us this suggestion and hope it will solve the problem of some of the assistants who have trouble with keeping instruments in condition.

Dear Miss Pierce:

Please give me information as to how I may be able to remove modeling compound from pans and trays used in the laboratory.

G. T., Montana.

ANSWER—There are several ways to remove compound from trays and pans. One is to remove as much of the adhered compound as possible by placing them in very hot water for a few moments to soften the compound, then wiping off as clean as possible with a cloth, following which coat with vaseline or any other oily substance and hold over the

flame of a Bunsen burner until very hot, wiping clean with a cloth. The trays can then be given a final polish with a brush wheel.

Another method is to boil the trays, etc., in water containing soap powder. This, however, dulls the brightness of certain metals, but can be used for porcelain impression pans, etc., with success.

Dear Miss Pierce:

Please send me information concerning schools for dental assistants and secretaries. Is it possible to take this course by correspondence? If so, please refer me to an institution. G. I., Gate City, Va.

Answer—In the past year we have received a number of inquiries such as this relative to schools for dental assistants. To our knowledge there is no school for dental assistants in the United States which is not primarily a school for dental hygienists, giving as a part of that training instruction in dental assisting. In Toronto, Canada, as a part of the Dental Department of the University of Toronto, there is a course for dental nurses for the purpose of training young women to act as assistants to dental practitioners. This course was established in 1920 by the Royal College of Dental Surgeons in Ontario, and when in 1925 the School of Dentistry was taken over by the University of Toronto, the course was continued. This course comprises eight months of instruction and requires the Ontario Pass Matriculation or its equivalent. All applicants, understanding that they are on probation for the first thirty days, are permitted to proceed with the course only upon recommendation of the Faculty Council.

We know of no school affiliated with a college or university that gives correspondence instruction in dental assisting. We are of the belief that, to understand thoroughly the duties of a position as dental assistant, the young woman must have the practical application of such a service, as well as didactic instruction, and this can be acquired only by personal contact with patients and dentist such as can be made possible in the clinics of a dental school.

Dear Miss Pierce:

Can you suggest a method whereby rubber dam can be sterilized without boiling; also cotton rolls? I read the *Questionnaire* faithfully and can hardly wait for the magazine to come to the office. Please accept my thanks for all the help I have received from it.

E. J., Maine.

Answer—Rubber dam may be cut into suitable length and folded in gauze dental napkins in individual packets, then placed in autoclave

or similar live steam pressure sterilizer. Rubber dam may also be wiped with alcohol. Cotton rolls are cut in suitable lengths, in the different sizes used, half a dozen pieces placed in gauze squares or dental napkins, folded into individual packets and sterilized in live steam pressure sterilizer. All material that cannot be boiled can be sterilized in this manner.

We are glad to know you like the *Questionnaire* and that it has been a help to you. We dare to hope that it has a value to all who read it and we welcome suggestions and ideas from our readers.

Educational and Efficiency Society for Dental Assistants, First District, New York, Inc.

April Meeting

At the April meeting of the Educational and Efficiency Society for Dental Assistants, New York, the essayist was Herbert D. Pease, M.D. In discussing *Bacteriology as It Relates to the Dental Assistant,* Dr. Pease told of the common habits of spreading bacteria and disease and suggested efficient methods of sterilization and of cleaning and caring for the hands. Miss E. M. Denison related her interesting experiences on a pleasure jaunt through England and France.

Annual Dinner

The Sixth Annual Dinner of the Society took place on April 30, 1927, at the Hotel Astor, New York. The guests of honor were Juliette A. Southard, Founder-President, American Dental Assistants Association and the Educational and Efficiency Society for Dental Assistants, New York, and Maude E. Sharpe, General Secretary, American Dental Assistants Association. Among the other guests were Dr. I. N. Broomell, Dean, Dental School, Temple University, Philadelphia, who commended the efforts of the dental assistants in striving for greater efficiency in their work and urged them to continue in their march toward greater education; Miss Mary Allen, a noted teacher and social worker; Professor Henry Gaines Hawn; Dr. Wilber M. Dailey, Dr. LeRoy S. Edwards, President, Second District Society, New York; Mrs. Mary E. Hillman, President, Philadelphia Dental Nurses Association; Dr. George Wood Clapp, Editor, The Dental Digest; Dr. Henry Fowler, Honorary Member of the Educational and Efficiency Society for Dental Assistants, New York; Miss Jean Graham, President, Dental Hygienists Association, New York; and several clubwomen of local and national note, who also addressed the diners.

Juliette A. Southard brought greetings from the dental assistants

of the entire nation and urged the dental assistant to continue to reach onward and upward to higher ideals and increased efficiency in loyal service to the dentist and patient. Miss Maude Sharpe spoke on *Our National Organization,* telling of the organization and progress of the American Dental Assistants Association. Other speakers were Dr. LeRoy S. Edwards and Dr. Wilber M. Dailey, both of whom expressed their confidence in the work of the dental assistant and commended the Society on its efforts to further the education of the dental assistant. Miss Mary Allen and Henry Gaines Hawn brought messages of truth and inspiration to the assembled guests. The occasion was a fitting close to another year of successful endeavor by the Society.

May Meeting

At the annual meeting on May 10, 1927, the following were elected to office for the ensuing year: President, Emily Campbell Clifford; Vice-President, Maude E. Sharpe; Secretary, Robina McMurdo; Treasurer, Sylvia Danenbaum; Members of Executive Committee, Anna Daum, Elsie Heilge.

Clinic Club

The Clinic Club presented clinics on *Short Cuts to Efficiency* before the 59th Annual Convention of the Dental Society of the State of New York at Buffalo, May 19-20, 1927.

Montreal Dental Assistants Association

The Montreal (Canada) Dental Assistants Association held its final meeting of the season in April at the Medical Building of McGill University, with Ruth Firth, Chairman for the English Section, conducting.

Dr. D. Prescott Mowry, President of the Montreal Dental Club, spoke on *Hygiene and Ethics* and pointed out the fact that the laws of Quebec forbid the practice of prophylaxis by other than a registered dentist. More harm than good may be done by one inexperienced.

Miss Salter, R.D.N., of Toronto, took the stand that graduate hygienists in some States of the United States of America practice this branch of the profession with success. Perhaps we in Canada may awaken some day to this view.

Special thanks are due to Dr. A. L. Walsh, Director, Montreal General Hospital Dental Clinic, for arranging for the use of the lecture room at the Medical Building, McGill University, and to Dr. George Cameron, Professor of Prosthetic Dentistry, McGill University, for arranging the course of free lectures for the Association.

Books Received

A BOOK MAY BE AS GREAT A THING AS A BATTLE—DISRAELI

Orthodontics, An Historical Review of Its Origin and Evolution, Including an Extensive Bibliography of Orthodontic Literature up to the Time of Specialization, by Bernhard Wolf Weinberger, D.D.S., New York, N. Y., Librarian, First District Dental Society of the State of New York; Advisory Librarian (Dental Department), New York Academy of Medicine; Member, Fédèration Dentaire Internationale and various dental and orthodontic societies.

Although this work purports to be a history of orthodontia, the first few chapters contain a most interesting resumé of the progress of dentistry as a whole. The author carries us back to earliest times and adequately explodes the theory that caries and malocclusion are products of modern civilization. The very oldest jaws of man show evidence of these pathological conditions.

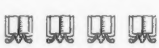
The first chapter deals with primitive man and then are taken up the medicine and dentistry of the ancient people, for at that time the two were inseparably linked. This state of affairs continued until 1530, when the first dental literature appeared. With the era of Fauchard, dentistry was well launched as a distinct art. From this point the author turns more and more to orthodontia and portrays the gradual development of that specialty. The book is the most complete of its kind that the reviewer has had the pleasure of examining. Infinite pains have been taken to include in it all who have had anything to do with the development of the science.

Too often dental books give the impression of having been hastily written, evidently with the feeling that anything will do. It has given us a great deal of pleasure to note that a number that have appeared recently are quite the reverse. This work of Dr. Weinberger is easily one of the outstanding contributions to dental literature in the past few years. It shows a care and thoroughness in preparation that will be hard to equal. The illustrations are admirable and the presswork is in keeping with the importance of the work. The author and publisher are to be congratulated on the result.

Dr. Weinberger says: "The significance of the work of a profession, and its true value and position with regard to humanity, is first made clear to us through history. Only after we have reviewed the labors of thousands of years and have seen how our science has advanced can we appreciate the work of the individual and the part he has done."

Every orthodontist should read this work, and the general practitioner will have a better understanding of his profession if he studies the long road over which it has come.

The work is in two volumes, containing 1011 pages, with 599 illustrations, bibliography, index of proper names, and subject index. St. Louis, Mo.: The C. V. Mosby Company, 1926.—A. M. J.



Harelip and Cleft Palate, by Matthew N. Federspiel, B.Sc., D.D.S., M.D., F.A.C.S., F.A.C.D., Professor of Oral Surgery, Marquette University; Ex-Professor of Orthodontics, Marquette University; Former President, American Society of Orthodontists; Oral Surgeon, Milwaukee Hospital; Marquette University Hospital and Federspiel Dental Polyclinic.

This book is by a man who is an acknowledged authority in his field, and in it he gives the technic that has made him so successful. It is a comprehensive and well written volume and will be valuable to any one interested in that branch of oral surgery.

The etiology and development of harelip and cleft palate, together with the anatomy and physiology of the parts involved, are well presented. There follows a description of the various types and their surgical treatment. There is one chapter on non-surgical treatment of cleft palate, and the final chapter is given over to case reports.

The author offers an operation, which consists in suturing the posterior pillars, to take the place of the velum and to be used in conjunction with an obturator. The pictures in the last chapter show what excellent results may be obtained in the treatment of these unfortunate cases.

While the interest in a book dealing with this subject is necessarily limited, yet to those engaged in the work it will be of the greatest assistance. 200 pp., with 156 illustrations and index. St. Louis, Mo.; The C. V. Mosby Company, 1927.—A. M. J.

A Text-book of Bacteriology for Dental Students, by Arthur Bulleid, L.R.C.P. (Lond.), M.R.C.S., L.D.S. (Eng.), Assistant Dental Surgeon and Assistant Bacteriologist to Guy's Hospital, London.

The importance of bacteriology for the general practitioner is increasing every day. We are told that root canals should not be filled until the bacteriological tests are negative. The certain diagnosis of Vincent's angina depends on the finding of the Vincent's bacillus. Certain men are making use of cultures by means of a skin test to determine whether or not a tooth may be safely retained in the mouth.

Most dentists have forgotten all that they ever knew of bacteriology, and this book will be found most welcome. It is not a treatise on dental bacteriology, for, as the author states, there is no such thing, but it is a bacteriology for dentists and as such it is the only one that the reviewer knows of.

General stains and staining methods are first taken up, then come microscopic methods, preparation of media, and methods of culturing. It then goes into the study of the various bacteria, paying special attention to those found in the mouth. In conclusion, there are excellent chapters on the examination of the blood, susceptibility and immunity, vaccines and antisera, and special laboratory investigations.

Until that Utopian condition arrives when there will be no oral disease, the dentist will be continually obliged to combat infection, and infection means the presence of bacteria. Consequently, the more we know of the subject, the better prepared we are to overcome it.

This book can be unreservedly recommended, and it should be in the possession of every dental practitioner as well as student. It is concisely written and conveys the necessary information without being tiresome. 219 pp., with 24 plates (one colored) and 36 illustrations in the text, appendix and index. St. Louis, Mo.: The C. V. Mosby Company, 1927.—A. M. J.

EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

A brain is only as strong as its weakest think.

All the fat tourists who go to Italy wonder what makes the Tower of Pisa lean.

HE'S THE ANSWER TO "THE MAIDEN'S PRAYER"

Women have never run after me. But I have known any number of women who were willing to walk slowly in order that I might catch up with them.

(Ardent Father)—My daughter sprang from a line of peers.

(Jepson)—Well, I jumped off a dock once myself.

(Mabel)—I know a man, married for thirty years, who stays home every night.

(Old Lady—with feeling)—That is real love.

(Mabel)—No! He has rheumatism.

(Fond Mother)—Yes, Genevieve is studying French and Algebra. Say Good Morning to the lady in Algebra, Genevieve.

(Angry Father to Son)—Why don't you get out and find a job? When I was your age I was working for $3 a week in a store, and at the end of five years I owned the store.

(Son)—You can't do that nowadays. They have cash registers.

(Bessie)—Isn't Roger a naughty dog, Mummie? He ate my dolly's slipper.

(Mother)—Yes, Darling, he ought to be punished.

(Bessie)—I did punis' him. I went stwaight to his kennel an' dwank his milk.

(Algy)—Clothes give a man a lot of confidence.

(Mike)—Yis, they sure do. I go a lotta places wid thim that I wouldn't go without thim.

The dentist was examining the teeth of a little girl visiting his office for treatment. He noticed that a corner of one of her front teeth was chipped off, and asked her if she remembered how it happened? "Sure, I do," she said. "Just shifting gears on a lollypop!"

THIS BEATS THE APPLE

Joy and Temperance and Repose
Slam the door on the doctor's nose!

LITTLE WILLIE'S PRAYER

"Please, dear God, send me a pair of roller skates and I will go to Sunday school every single Sunday. I won't play hookey or get the stomachache so's I can stay home or anything. But look here, God, if daddy buys me a pair of roller skates FIRST our deal is off."

The comic side of life is often found in queer places. An extremely rich old lady who lives in a mansion called up her chauffeur one day and said to him: "Richard, go right over to the Cadillac people and tell them I want to buy a new automobile, as the one we have now is all dusty!"

"Say, pa, that new boy next door knows I can lick him."

"Did he say so?"

"No, but I offered him a bite of my apple and he only took a little bite."

A man who has something to sell
And goes and whispers down a well,
Is not half so likely to collar the dollars
As he who climbs a tree and hollers.

"Did you hear about Jack stepping in front of a train?"

"Was he killed?"

"No, the train was backing up."

(Sim)—Hello, Jim! How is your old radio working these days?

(Jim)—Fine. I put it under the bed last night and got Hot Springs.

(He)—Did you say I was no gentleman?

(She)—No; I merely remarked that you preferred brunettes.

HOW TO REDUCE

A woman who was considerably overweight asked the doctor what she should do to reduce. "Take a proper kind of exercise," the doctor replied.

"What kind do you recommend?" she asked.

"Push yourself away from the table three times a day," replied the doctor.

FUTURE EVENTS

THE UNIVERSITY OF BUFFALO for the second year is offering a six weeks' POSTGRADUATE SUMMER COURSE for dental hygienists. By the advice and through the cooperation of the New York State Department of Education, the following course has been arranged:

Education (Principles of Teaching)
Child Psychology
Public Speaking
Applied Oral Hygiene (Field Problems)
Nutrition

Other related courses in education are available and may be substituted for any of these subjects already taken.

Dr. S. R. Meaker, Supervisor of Oral Hygiene in the State Department of Education, will have personal charge of the course. Other instructors include Dr. Daniel H. Squire, Dean of the School of Dentistry, University of Buffalo, and various members of the faculty; Miss Olive Lester, Instructor in the University of Buffalo; Miss Mary C. Boardman, Dental Hygienist; Mrs. George Skinner, Dental Hygienist.

Classes will be held from July 5 to August 13 as a part of the regular Summer School of the University. Clinical demonstrations will be given at the University of Buffalo School of Dentistry and other institutions.

Further information may be obtained upon request to Dr. Daniel H. Squire, Dean of the School of Dentistry, University of Buffalo, or Dr. S. R. Meaker, State Education Department, Albany, N. Y.

THE ALUMNI SOCIETY OF THE DEWEY SCHOOL OF ORTHODONTIA will hold a scientific meeting at the Vanderbilt Hotel, New York, N. Y., during the week beginning August 29, 1927. The first three days will be devoted to the consideration of scientific papers. The rest of the week will be taken up with clinics and practical demonstrations. All members of the dental profession who are interested in orthodontia are invited to be present.

A more detailed program will be given later.

HARRY A. HOLDER, *Secretary*,
Bennie-Dillon Bldg., Nashville, Tenn.

P. G. SPENCER, *President*,
Amicable Bldg., Waco, Texas.

THE AMERICAN SOCIETY OF ORAL SURGEONS AND EXODONTISTS will hold its ninth annual meeting at Detroit, Michigan, October 21-22, 1927. Headquarters will be at the Statler Hotel.

FRANK W. ROUNDS, *Secretary*,
270 Commonwealth Ave., Boston, Mass.

The next meeting of the AMERICAN DENTAL HYGIENISTS' ASSOCIATION will be held in conjunction with the meeting of the American Dental Association in Detroit, Mich., October 24-28, 1927.

Dental Hygienists, make your plans now to attend this meeting!

ETHEL F. RICE, *Secretary,*
721 North University Ave., Ann Arbor, Mich.

THE AMERICAN DENTAL ASSISTANTS ASSOCIATION will hold its Third Annual Meeting at Detroit, Mich., October 25-27, 1927. General headquarters will be at Hotel Savoy, where all sessions will be held, and reservations should be made promptly. Railroad fares are at convention rates on the certificate plan. All dental assistants are cordially invited to attend this meeting. Dental assistants' societies not affiliated with the American Dental Assistants Association are asked to send representatives. For further information, address

MAUDE SHARPE, *General Secretary,*
Suite 1202, 8 West 40th St., New York, N. Y.

THE FIRST DISTRICT DENTAL SOCIETY, NEW YORK, announces its third *Better Dentistry Meeting* to be held at the Hotel Pennsylvania, New York, N. Y., December 5-7, 1927.

In conjunction with this meeting a dinner will be tendered Dr. William Dwight Tracy in recognition of his contribution and unselfish devotion to the profession.

Detailed information will be published later.